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MISSOURI BOTANICAL GARDEN

BULLETIN

66

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Missouri Botanical Garden Bulletin

The Wardian Case, a Plant Shop specialty, Page 5.

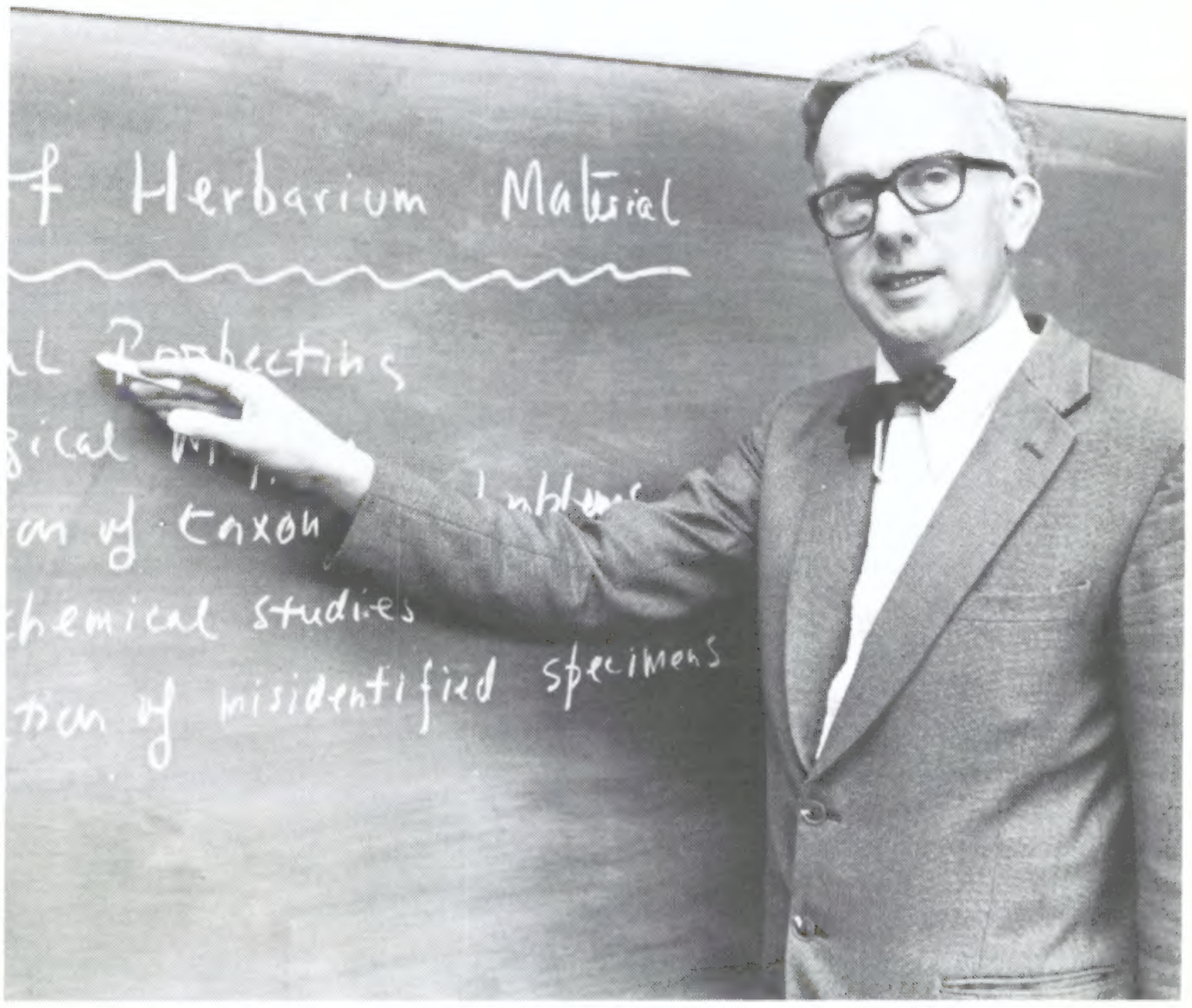
Herbarium Provides Clues In Search For Minerals

Each year, the Garden herbarium receives hundreds of requests for loans of plant specimens or for information concerning them. Most of these requests are made in connection with systematic studies of various groups of plants or floristic studies of various parts of the world. It is for these studies that herbarium specimens are usually collected: they are aimed at elucidating the basic nature of plants rather than at any economic or social goals. However, the herbarium is always interested in studies which make non-traditional uses of its specimens, and such studies often have social aspects.

About two years ago, a request was received from Dr. R. R. Brooks of Massey University in New Zealand. In his letter, Dr. Brooks stated that he was interested in identifying plants which accumulate high concentrations of nickel, and he asked us if we could provide him with small samples of herbarium specimens of the genera *Hybanthus* and *Homalium* for his studies. Several species of these two genera were then known to accumulate nickel in high concentrations, and he was interested in identifying other species which might do the same. Since Dr. Brooks only needed very small quantities from each specimen — samples approximately one square cm. each were all that he was requesting — several hundred samples were sent to Dr. Brooks.

Recently Dr. Brooks paid a short visit to the Garden to study and sample additional herbarium specimens, and while he was here he gave a seminar in which he summarized his results.

It has long been known that the mineral content of plants reflects the mineral content of the substrate on which they grow. For example, plants growing over rocks high in nickel often contain higher than normal concentrations of nickel in their tissues. A few plants which grow over nickel-containing rocks contain exceedingly high concentrations. Such plants are called hyperaccumulators of nickel. These facts were discovered by analyzing plants from areas known to have high nickel concentrations. Given these facts, it is reasonable to assume that if one discovers a plant which is a hyperaccumulator of nickel, it was growing over rocks high in nickel content. Since the world's herbaria contain something over 600 million dried plant specimens, each with a label telling where the plant came from, and since only very small portions of dried plant specimens are needed for the mineral analysis, Dr. Brooks has been doing his mineral exploration in herbaria.



Dr. R. R. Brooks, Massey University, New Zealand.

During his study of *Homalium* and *Hybanthus*, Dr. Brooks and his co-workers discovered that a member of the violet family, *Rinorea bengalensis*, was also a hyperaccumulator of nickel. This is a widespread species which occurs from Ceylon to eastern Australia, and it grows over a wide variety of substrates. Eighty-nine small herbarium specimens were analyzed, and nickel concentrations ranging from 20 to over 17,000 micrograms per gram dry weight were discovered. When the collection localities of the analyzed specimens were plotted on

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January 1978

Herbarium . . .

(Continued from Page 1)

a map, it was found that those specimens which contained high concentrations of nickel came from areas known to have rocks high in nickel.

However, there were two exceptions. Two collections from different parts of New Guinea had very high concentrations of nickel, but the geology of these areas is unknown, and so we do not know whether or not they come from high nickel areas. However, the probability that this is so is very high, and this is the interesting and important point about Dr. Brooks' study: apparently plants preserved as herbarium specimens can be used to help discover new deposits of mineral resources.

This is but one example of how herbarium specimens may be used for studies totally different from those for which they were originally gathered. Some of the collections in the herbarium were made well over 200 years ago, but they are just as good for many of the highly refined studies being carried out today as are specimens gathered only last year. As techniques for studying the submicroscopic and even atomic nature of plants continue to be refined, more and more can be learned about plants from the herbarium specimens currently on deposit. While these studies often require that a portion of the specimen be destroyed, the amount of material required is usually very small and by selecting only specimens with abundant material for use in the studies, we can be certain that we will both contribute to man's understanding of the plants around him and that the specimens will be preserved for the future.

Holiday Workshops In Ohio Conducted By Ken Peck

Ken Peck, head of the Garden's Education Department, has returned from a holiday visit to Roscoe Village, Coshocton, Ohio, where he conducted a two-day series of Christmas decoration workshops for more than 100 interested Ohioans.

During the workshops, Mr. Peck demonstrated the methods of constructing six different kinds of holiday decorations suitable for home use. He also assisted participants in fashioning their own decorations and included a bonus within his presentation — showing color slides of the Garden to the two Ohio groups. Mr. Peck reports that both the workshops and the slide presentation were well received by the participants.

Roscoe Village is a restored resort canal town located on what was once the Ohio and Erie Canal system. The period of restoration, approximately 1830-40, includes the colorful era when wide, barge-like canal boats drawn by horses or mules were used to haul passengers and freight along the inland canal system, at the breakneck speed of three to four miles per hour.

During that period, a canal man and his family would make their home at one end of the large barge, livestock would be penned at the other end and the midship section would be used for cargo. Remnants of the old canal system still exist in some regions of Ohio, and in the Roscoe Village area a number of canal locks used to raise or lower barge traffic can still be seen.

Roscoe Village, like the Garden, is a private, not-for-profit institution.

CAMPAIGNING AT THE GARDEN – Mrs. A. Timon Primm III, head of table, second from left, chairs a briefing meeting for one of several committees established to coordinate the Garden's current $6 million development campaign. Others at head of table include, from left, Kent Guske, director of development, A. Timon Primm III, major gifts chairman, and Dr. Peter H. Raven, Garden director.

The Garden Library: Its Life And Growth

Dr. Frans A. Stafleu, left, of the University of Utrecht, the Netherlands, and Dr. Richard S. Cowan, Smithsonian Institution, conduct research among Garden library materials, including the rare and recently acquired Flore d'Ègypte, *based on botanical collections made during Napoleon's expedition to Egypt.*

A library is not a static collection of books. It must grow through the purchase and exchange of new and old publications. The Garden publishes its *Annals* to report the scientific results of staff research and that of other investigators. This publication is used by the Garden library in exchange for other periodical works from all over the world. Therefore, the *Annals* plays a critical role in the growth of the library.

Another facet of the library's scientific role was reinforced recently by the visit of Drs. Stafleu and Cowan, collaborators on an enormous endeavor: a 20th century compilation of taxonomic literature.

The literature of taxonomic botany is enormous, and taxonomists have long recognized the importance of periodically producing catalogs of the more important titles. For example, when he was 28 years old, Linnaeus, the father of modern botany, published his *Bibliotheca Botanica* in which he listed what he considered the most important botanical works, beginning with the Greeks. This modest volume was not meant to be comprehensive, and it is important now principally in identifying some of the abbreviations which Linnaeus used in his later publications.

Comprehensive guides to the literature of taxonomic botany seem to appear about once every hundred years. Albrecht von Haller published his own *Bibliotheca Botanica* between 1771 and 1772. These two thick volumes, which contain over 1400 pages, are important now because they contain much information about pre-Linnaean (pre-1753) literature and they also contain many references not taken up by later bibliographers.

Georg August Pritzel published the second edition of his *Thesaurus Literaturae Botanicae* between 1871 and 1877. This compilation contains nearly 11,000 separate entries and provides a good overview of the literature which had appeared since Haller's publication. For many years this has been a standard reference work for those dealing with botanical literature.

In 1967, Dr. Stafleu published a "modest" volume entitled *Taxonomic Literature,* which contains information on more than 1400 basic works in taxonomic botany. He reports that most of the information had been accumulating in his files for many years and that one day a visiting taxonomist, after consulting the files, said to him, "It is unfair for you to have so much information which is confined to this room." A month later, Dr. Stafleu began to compile the manuscript for his *Taxonomic Literature.*

The 1967 book is now being expanded into a much more comprehensive handbook to the most important literature of systematic botany. This new handbook, the result of the efforts of Drs. Stafleu and Cowan, is called *Taxonomic Literature,* Second Edition, or *TL-2* for brevity. It will appear in five volumes, totaling more than 6,000 pages. The first volume, covering authors whose names begin with the letters A through G, appeared in 1976 and contains informa-

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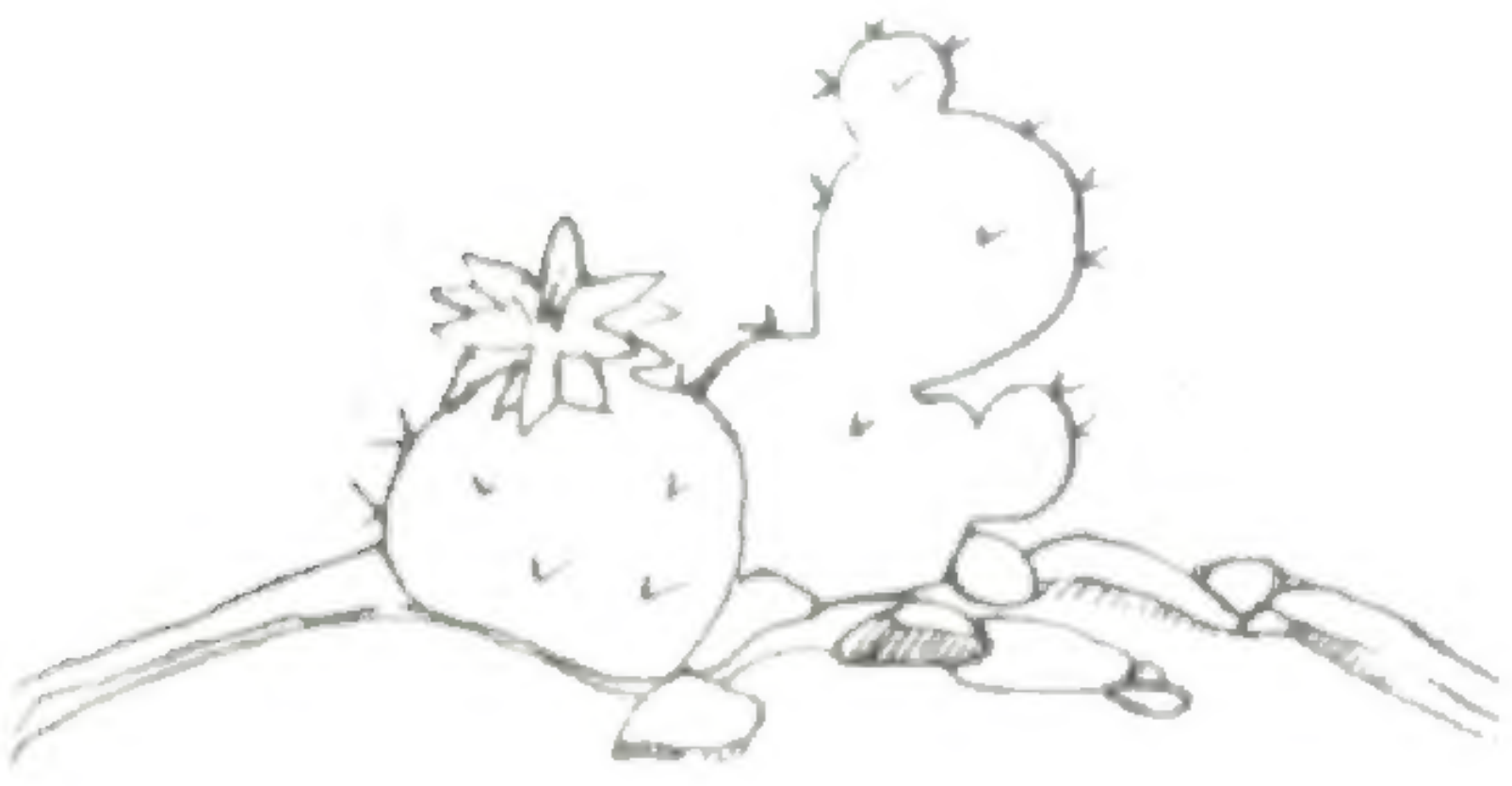
The Garden Library...

(Continued from Page 3)

tion on more than 2,200 different published works. Besides giving the title and author of each work, additional information concerning the authors and the books is included. For example, dates of publication are very important in taxonomic botany for establishing the proper names to apply to plants. In many cases, very precise datings, to the very day on which books were published, are important. *TL-2* will contain this kind of information in addition to a wealth of other facts concerning the books and authors.

Drs. Stafleu and Cowan are receiving cooperation from some 20 to 30 botanical libraries, located mostly in North America and in Europe. They visit the Garden's botanical library once or twice each year to study the large numbers of rare books which it contains. Dr. Stafleu says that he is constantly amazed at the richness of our collection. For example, he has found in the Garden library many rare books which were originally published in Holland but which he has not encountered even in their country of origin.



Henry Shaw Cactus Society Makes Garden Contribution

The Henry Shaw Cactus Society, represented by Betty Demzik, president, and Josephine Goelzhausor, has presented the Garden with two contributions — one of $2,500 for improvements in the cactus service greenhouse; and one of $500 to be used for general greenhouse operation.

Mrs. Demzik, during the presentation ceremony, explained that the Society has been pleased by the spirit of cooperation at the Garden and wished to express its appreciation with these contributions.

Dr. Peter H. Raven, Garden director, responded by expressing his gratitude for the Society's generosity and by explaining the features of the floral display area of the planned new Visitor Orientation/Education Center, an aspect of the new building of great interest because of the Henry Shaw Cactus Society show held annually at the Garden.

The Society is composed of 300 members who meet the second Sunday of each month except August. A special program is presented each month and members may check out books from the Society's collection and share cultural information and ideas.

Membership dues are $5 per individual, $7.50 per family. The dues include a subscription to the *Cactus Digest*, a monthly publication which is mailed to members containing cultural information.

For further information regarding membership in the Henry Shaw Cactus Society, please contact Kathy Dickman, Route 8, Box 235, Edwardsville, Ill. 62025.

Graduate Course In Colombia Taught By Garden Staff Member

Dr. Alwyn Gentry, assistant curator in the Garden herbarium, has returned from a three-week trip to Colombia where he directed a graduate level course in advanced plant taxonomy.

The course taught by Dr. Gentry, attended by 24 botany professors from thirteen universities, was funded by Colciencias, the Colombian counterpart of the U.S. National Science Foundation. This invitation to conduct the first Colombian graduate level botany class is another indication of the esteem with which the Garden's tropical expertise is regarded.

In view of increasing rapid destruction of the world's remaining tropical vegetation, it is urgent that botanists in tropical countries accelerate their studies of their respective countries' flora. The increasing interest in plant taxonomy in Colombia is a case in point.

Seiwa-en Benefit

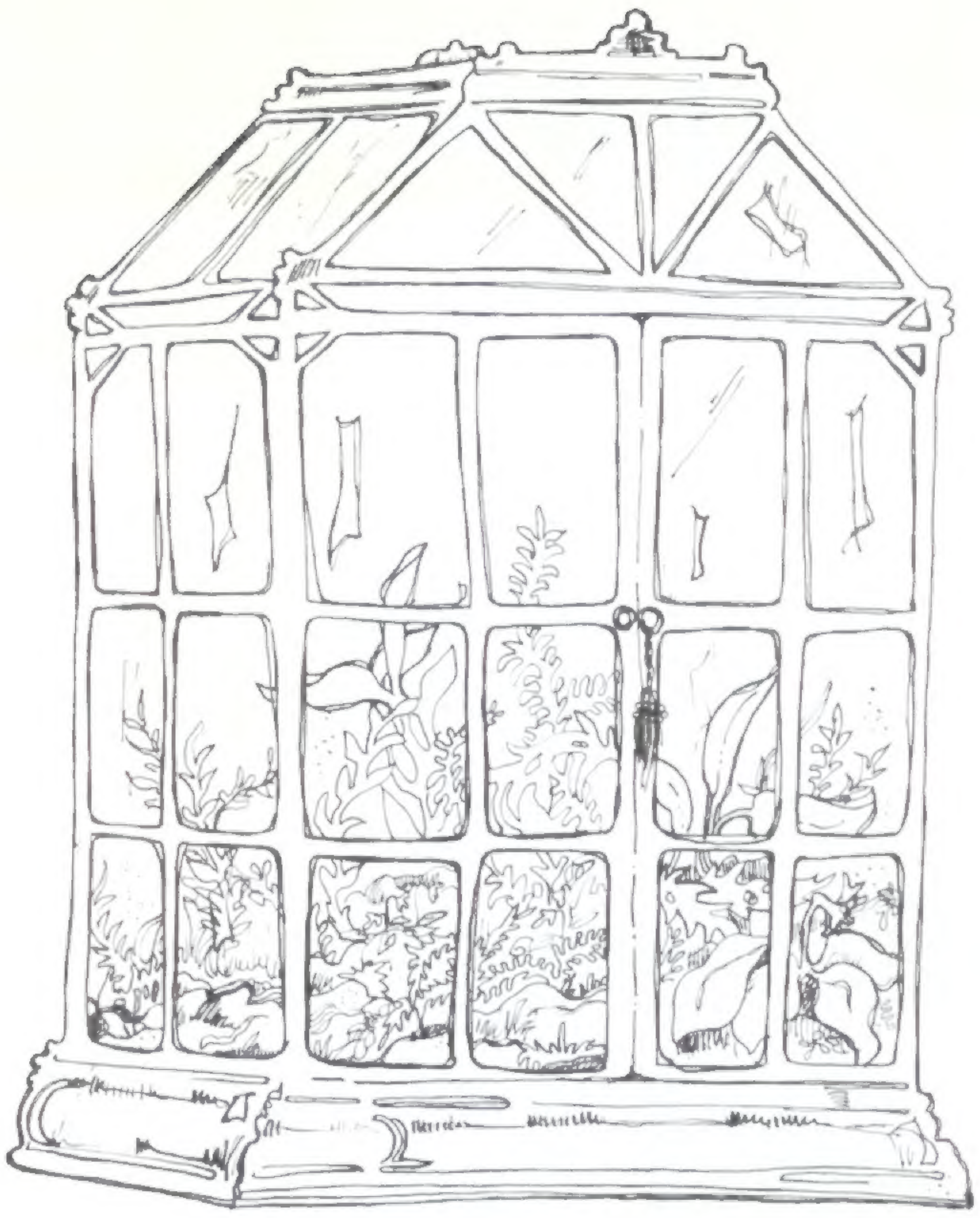
In charge of arrangements for the Garden's Seiwa-En benefit are, standing, from left, George Hasegawa, treasurer, Japan America Society; Carl L. A. Beckers, Honorary Japanese Consul; Dr. Peter H. Raven, Garden director; seated, John Armbruster, board chairman, Community Federal Savings and Loan Association; Mrs. Jane Harris and her husband, Whitney Harris, vice president, Japan America Society.

The Japan America Society and Community Federal Savings and Loan Association will host a Japanese Garden benefit on February 26, from 5 to 9 p.m. Mr. and Mrs. Whitney R. Harris are co-chairing the benefit with the assistance of a large committee.

There will be entertainment, food and beverage for this special event. For further details and information, please call 772-7600, extension 22.

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Mo. 63110. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign.

The Wardian Case



To acquaint Garden Members with new, select, and rare offerings available in the Plant Shop, the Bulletin will be featuring monthly selections in a continuing report entitled "The Wardian Case."

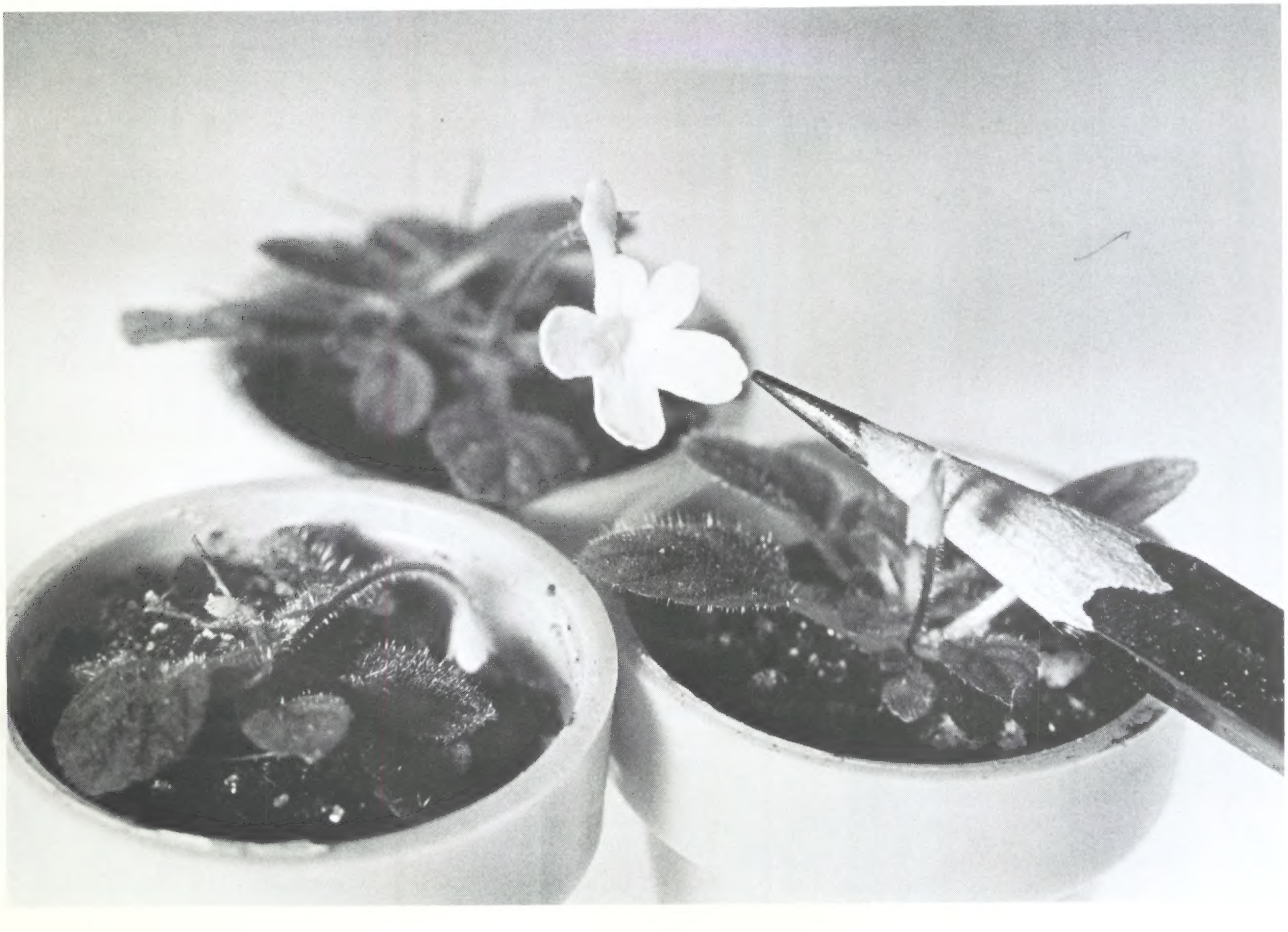
The term Wardian Case comes to us from the late 18th and early 19th centuries. The forerunners of our present day terrariums, these cases evolved from a simple glass enclosure developed by an English physician and scientist, Dr. Ward, into transport cases for early 18th century plant explorers and eventually into elaborate Victoriana parlor decorations (one may be seen in Tower Grove House). In all forms, the term has been associated with the rare, unusual and unique in the botanical and horticultural world for nearly two centuries.

Our first feature in this series is *Sinningia pusilla*. A member of the Gesneriad family —Gesneriaceae— this little gem comes to us originally from the wilds of Brazil. *S. pusilla* is the only gesneriad which with proper conditions has no dormancy whatsoever. It is in the true sense an everblooming plant. No larger than a quarter at maturity, *S. pusilla* forms a flat rosette of ½" hairy leaves with pronounced veination. The tiny ⅛" violet to lavender flowers are borne in profusion above the plant on threadlike stems.

S. pusilla is incredibly easy to grow provided that it is given terrarium conditions. This highlights the necessity of continuous moisture, warmth and high humidity. Artificial lighting is ideal although success can be obtained with high light without direct sun or curtain filtered sunlight. Seed is produced spontaneously, eventually creating large colonies of plants. Leaf propagation like that of the African violet is possible.

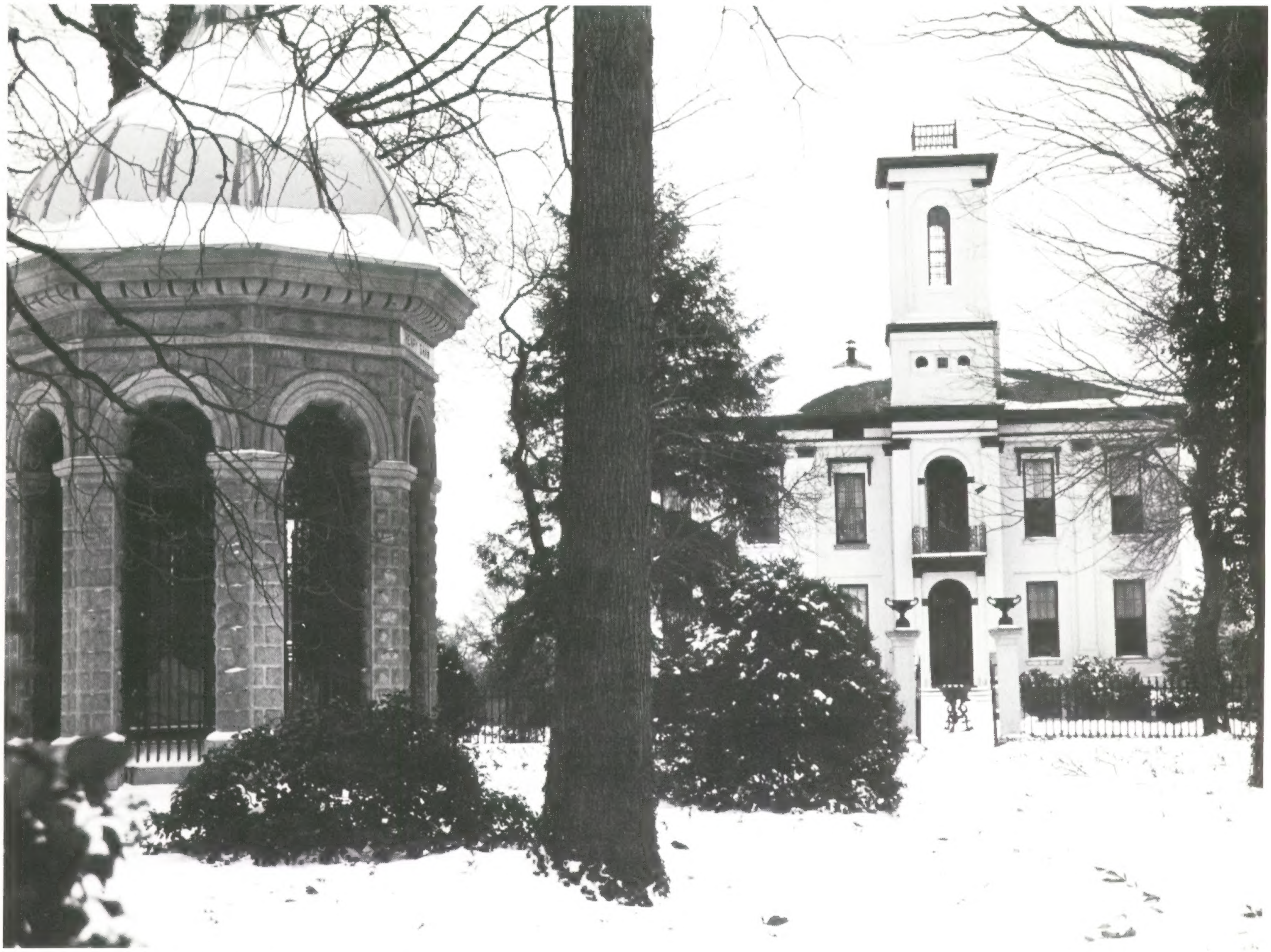
All in all this diminutive plant is an inexpensive and valuable addition to your collection, making it one of the most attractive and worthwhile terrarium subjects.

S. pusilla is available for inspection or purchase at the Plant Shop, daily from 10 a.m. to 4:30 p.m.



Sinningia pusilla

Snowfall and Serenity: A Garden



Tower Grove House and Henry Shaw's mausoleum.

Snow-viewing lantern, yukimi-doro.

The teahouse of the Japanese Garden.

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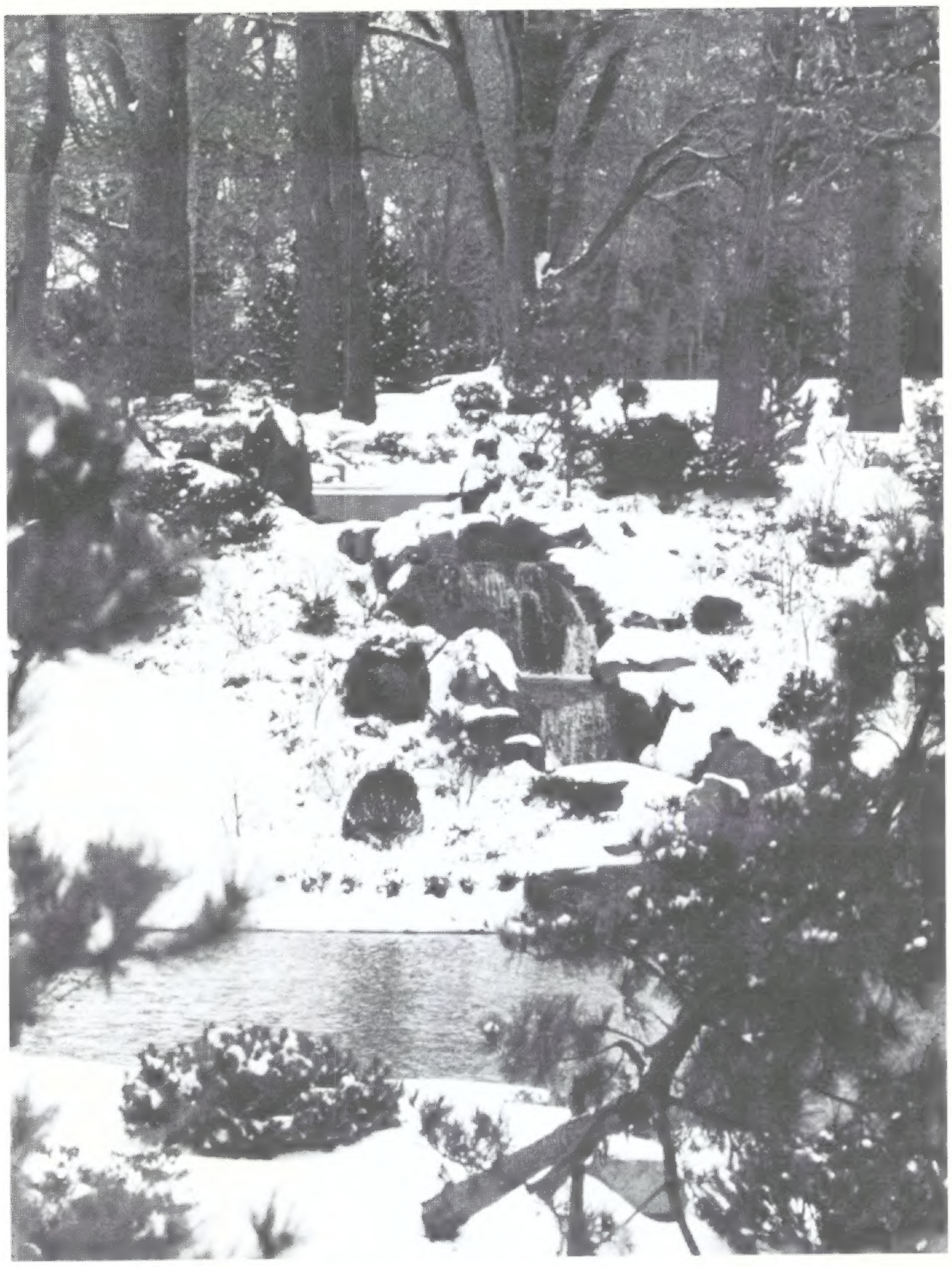


Waterfall spills into Japanese Garden lagoon.

Drum bridge,
Japanese Garden.

The Library's African Collection

During the period when the Garden's herbarium has served as the national repository for African plant collections, the library has made a special effort to improve its collections of books and publications on African botany. While the library already possessed a very respected selection of books on the African flora, there were some significant gaps in its holdings.

As an example, the library has had in its collections since 1930 the second edition of an important work on North Africa botany: Alire Delile's *Flore d'Ègypte* (Paris, 1824). It has only been in the past few weeks, however, that we have been able to obtain the scarce first edition of this work, published in Paris in 1813. Delile was a French physician and botanist who accompanied Napoleon in his attempted conquest of Egypt. In spite of his medical duties, Delile found time to study the native plants of Egypt and to collect plant specimens for several European herbaria.

As another part of its effort to improve its African collections, the library staff searches all the publication catalogues it can obtain that might conceivably list items of interest. As is true with so many underdeveloped areas, official publications from Africa are often produced in very limited editions, are not widely distributed and are often extremely difficult to locate. Frequently, one of the biggest challenges faced by the library staff is the seemingly mundane task of obtaining the proper address of a government agency in Africa that may plan to publish something on botany, forestry, vegetation mapping or other topics of interest to the botanical researcher.

The library's collections of "Botanical Africana" are of interest not only to plant scientists, but to historians and to scientists in other disciplines as well. Many of the earlier European publications on Africa were accounts of travel and exploration into previously unknown regions. These books often contained reports on geology and mineral resources, maps and itineraries of routes, anthropological and ethnological accounts of native tribes encountered by the explorers, studies of native art and artifacts, as well as lists of plants and animals observed during the expedition. A typical example of this type of account is an 1884 work by the English explorer and geographer H. H. Johnston, *The River Congo from its Mouth to Bólóbó,* a volume recently added to the library. This book is a general account of a voyage Johnston began at the mouth of the Congo in 1882. He discusses sites he visited along the way, adventures he and his party experienced (including an attack by a hippopotamus), and descriptions of plants and animals encountered along the way. Included among the many illustrations are several drawings of plants, and there are also two very useful maps of the area he traversed.

Large Floral Display Space Is Feature Of New Building

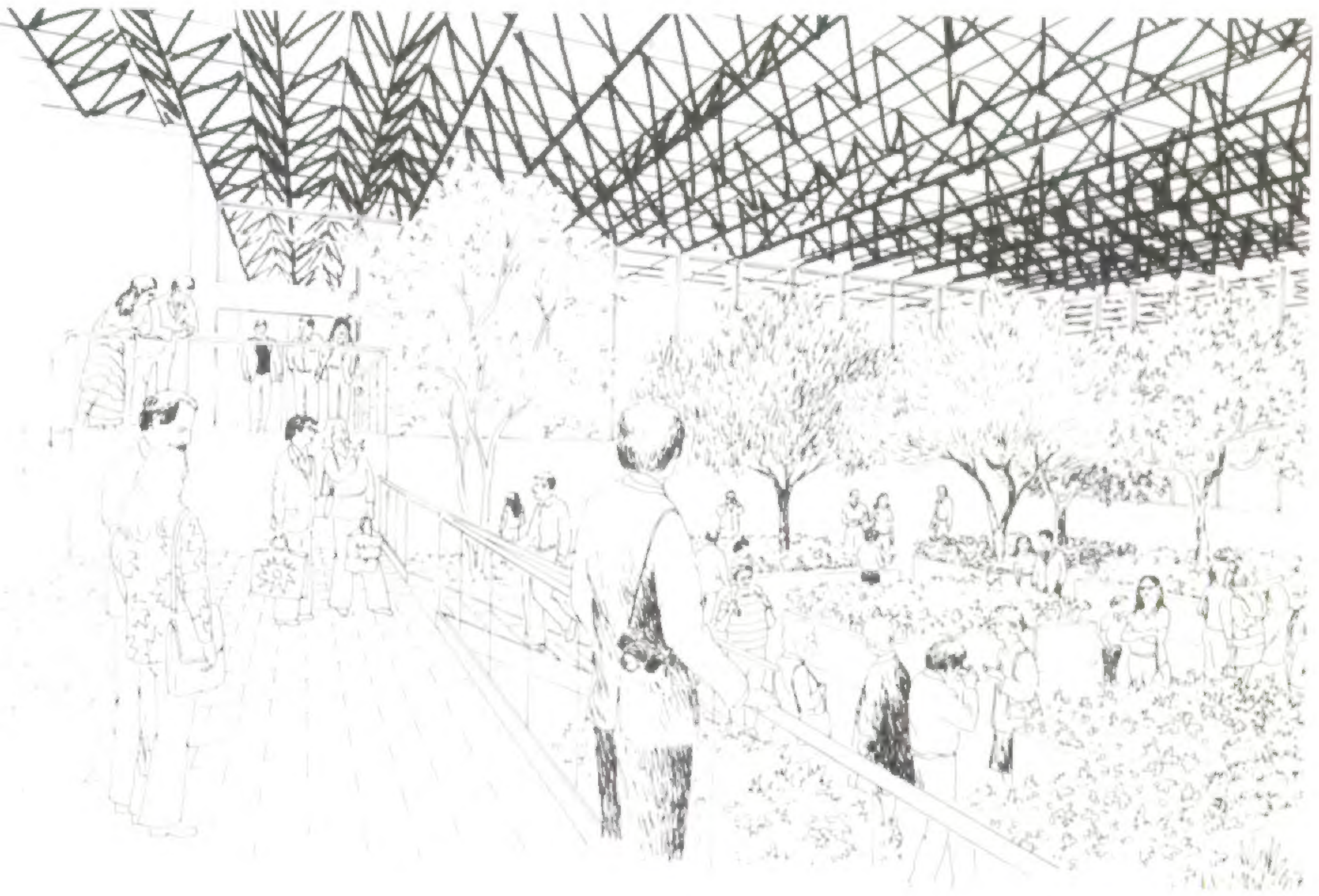
One of the outstanding features of the new Visitor Orientation/Education Center, to be built within the northern portion of the Garden, will be a greatly enlarged floral display area. The building itself is the principal element of the $6 million development campaign now underway.

The floral display hall will be completely climate controlled to make possible year around use. The enlarged facility will improve the ability of the Garden to host shows of the local single plant societies. Increased and improved support facilities will be provided to facilitate set-up and take-down of the shows. Because of the increase in space, it will be possible to provide more educational features as a part of all these displays.

The design of the floral display area will provide upper level viewing to give an overall observation area which will include a portion of the restaurant. Large resident plants in moveable containers will provide background and framework for the displays and shows. The increased adjacent parking and ease of access to the new Center with night lighting will permit evening programs.

While the facility will provide a new access to the Garden and open an area of the Garden formerly closed to the public, the present main gate will remain as it is. Although the Garden Gate Shop will move to the new Center, the lovely stone and wrought iron grillwork will remain untouched. The dramatic main axis of the Garden will be less congested and therefore the lily ponds, Climatron and gate can be enjoyed to their fullest.

By using the space at the north portion of the Garden more efficiently, the proposed new Visitor Orientation/Education Center and the adjacent environmental support complex, an entire new area will be open to the public. This complex will enable the Garden to fulfill its three main objectives: research, education and display.



Floral display area, planned new Visitor Orientation/Education Center.

The Answerman Service Grows And Grows

Members of the Garden's volunteer Answerman corps, during one of the regular seminars held to train new volunteers and keep current Answermen abreast of botanical developments.

A few casual inquiries 15 years ago by curious gardeners led to a fast growing horticultural answer service for St. Louis area gardeners. When George Pring retired as superintendent of the Garden after more than sixty years of service, he volunteered his mornings to answering questions, handling 15 to 20 inquiries each day. On the days when Mr. Pring was not available, the Garden's department heads were pressed into service to answer horticultural questions. However, the queries began to mount so rapidly that the time demands became too great.

At this time, the Regional Council of Men's Garden Clubs was contacted for volunteers to assist in the answer service. Several of the original volunteers are still serving as Answermen. In 1970, Paul Kohl, who for fifty years designed, staged and grew the plants for the Garden's seasonal shows, retired and joined the Answermen. He alone answers horticultural questions November through March while the Answermen are in training sessions.

During the winter months, those involved in this unique service attend a series of weekly seminars designed to keep them abreast of the latest developments in horticulture. The 1977-78 series marks the third year of the teaching program. Instructors are Garden personnel and extension specialists from the University of Missouri.

There are presently 18 persons, both men and women, serving as Answermen. A typical day during the active gardening season will include 100 calls requesting information. More than 11,000 requests were recorded during the period from March to November, 1977. A few questions years ago has blossomed into an active, community-wide service.

PHONE POWER – Volunteers from the Executive Board and the Membership Organization, during the Membership Phonathon, contacted more than 880 members to remind them to renew Garden membership. Volunteers are, from left, Mrs. Barb Merollis; Mrs. Tatie Reese; Mrs. Carol Houghton; Mrs. Ruth Minton; Mrs. Susie Yoder; Mrs. Annalea Kerckhoff, Membership Committee chairman; Mrs. Sally Behan; Mrs. Nancy Lammers; seated, Mrs. Nora Stern, president of the Executive Board of the Members.

January is a time when the gardener may relax, sit back, take it easy and make plans for the coming season of intense garden activity.

The latest Gallup Poll indicates that 43 million people are vegetable gardening and that the trend will continue to increase. Great strides have been made in the last few years on development of new vegetables. Outstanding new developments, for instance, have been made in corn. The goal is to get varieties which will stay at the proper picking stage for 10 to 14 days, far longer than the present sweet corns. The EH factor, a genetic trait that slows down the conversion of sugar into starch after picking, is responsible. Stokes Seeds, Inc., 2657 Stokes Building, Buffalo, New York 14240, has developed a variety called Candycorn which has red husk markers. Burpee Seed Company has produced a new variety called Mainlander, which matures in 88 days and also contains the EH factor. Both of these excellent yellow kernel varieties will be popular with home gardeners.

ALL-AMERICAN TOMATO

The new All American Bronze Medal tomato is Flora America, producing fruit approximately 75 days after planting and resistant or tolerant to a great many diseases. It bears fruit from eight to 12 ounces and is comparable in size to the popular Beefsteak or Big Boy tomato. This is an excellent variety to grow for staking or growing in a wire cage.

Hybrid watermelon, Sweet Favorite, is another All American winner for 1978, maturing in 72 days and having fruit averaging 20 pounds with a high sugar content, rich red interior and good flavor. This variety shows excellent tolerance to anthracnose and fusarium wilt.

Parsley Curlina is a new mini-triple curled parsley with dark green leaves on 6½ inch plants, making it an excellent choice for kitchen window pots or the garden and available from Stokes Seeds.

Seed geraniums continue to highlight the test gardens throughout the country. These are ideal geraniums for home culture, blooming late in the St. Louis area and withstanding adverse weather conditions. Seed geraniums are available in the popular Sprinter varieties. Showgirl hybrid is another early free-flowering variety which is bright rose-pink in color. Orange Punch geraniums, the first really orange geranium, has prominently zoned leaves. This is an earlier flowering variety than the Carefree geranium and flowers just after Sprinter. Seed geraniums, when they were first introduced, were rather late flowering for home gardeners who started their own seed in March. Since then, earlier and earlier types have been introduced until the seed geranium has become one of the top 10 annuals in North America. Home gardeners can now sow these early new varieties in January on the kitchen windowsill and set out flowering plants in late May.

SHADE PLANTS

Excellent plants for shade are the new coleus sabre series, noted for their serrated leaves which add a graceful and airy look to gardens. These plants are low-growing and self-branching, bright in color, and are an asset wherever grown. They are also excellent for small containers, on patios, porches and decks.

Another excellent combination are two new begonias called Mars and Glamor White. Mars begonias are large-flowered red dwarf begonias, while Glamor White is a large-flowered white fibrous begonia, making an ideal combination when planted together.

Dianthus Snowfire is another All American winner for 1978. This is a dwarf base branching plant with dense masses of fringed bicolor blooms two inches in diameter. The white blooms with cherry-red centers provide a long-flowering period in six to eight inch plants and, if flowers are removed, will very quickly produce new buds giving added show color. Dianthus Magic Charm hybrid mix colors, another All American Bronze Medal winner, are excellent flowers for this area producing blooms one and three-quarter inches across. They were planted directly in front of the Climatron this past summer.

New sources for growers now are the wild flowers which are readily available from the Applewood Seed Co., 833 Parfet Street, Lakewood, Colorado 80215. This is a seed firm that started about 12 years ago and has a free mail order catalog which can be obtained by writing to them. They produce an excellent assortment of wild flower seeds for growing in the garden in natural areas. Also they have an excellent collection of herbs. They grow many more of the uncommon species seldom found outside the rare plant collections and they set high standards for seed vigor and viability. They also have an excellent book called *Water, Light and Love, A Guide to Growing Plants from Seed,* which sells for $3.95. The book contains extensive and practical information on more than 120 wildflowers, herbs and other specialty plants. Charts give germination time, favorable temperature, whether other special treatment is needed to initiate seed germination. Seed packets are attractive and add a new dimension to home gardening.

Some good sources of seed catalogs besides those listed are: Burpee Seeds, 300 Park Avenue, Warminster, Pa. 18974; George W. Park Seed Co., Greenwood, S.C. 29647; Burgess Seed and Plant Co., Galesburg, Michigan 49053; R. H. Shumway Seedsman, Rockford, Ill. 61101; Jackson & Perkins, Medford, Oregon 97501.

– Robert J. Dingwall
Chief Horticulurist

Chelsea Flower Show

A highlight of the 1978 season will be the Members' English odyssey to the Chelsea Flower Show. The tour will include visits to London, Salisbury, Darbyshire, York and Cambridge. The trip is scheduled for May 19 through June 4. Further information and details may be obtained by calling the Members' Office, 772-7600, extension 25.

Orchid Show Preview

A special members preview of the Orchid Show in the Climatron is scheduled for Friday evening, February 3, from 5 to 7:30 p.m. This exotic display has long been a favorite and is being offered after a two year absence. The Garden gratefully acknowledges the Famous-Barr Co. for making this special event possible. The Orchid Show has been made possible through the generous assistance of the Missouri Arts Council.

SPECIAL NOTICE

Tower Grove House will be closed for renovation January 2 through January 31. During this period the dining room will be redecorated.

MEMBERSHIPS—NOVEMBER 1977

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INCREASE IN MEMBERSHIPS—NOVEMBER 1977

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Mr./Mrs. T. S. Hall
Dr./Mrs. Fleming B. Harper
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Mr./Mrs. Ronald Lovett
Mr./Mrs. Sterling J. Ryan
Mr./Mrs. Donald Wildman
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Mr./Mrs. Stuart Zimmerman

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Mr. R. Stemmler
Western Supplies Co.

CONTRIBUTING

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Ms. Margie Coates
Mr. Herman DaCosta
Mr. Thomas L. Gossage
Mr./Mrs. Harold R. Hoffelder
Mr. Marvin Klamen
Mr. Walter S. Koehl
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Ann and Peter Husch

In Honor of Mrs. S. E. Freund's Special Birthday
Mr. & Mrs. Ellis C. Littmann

In Honor of Mr. and Mrs. Jules Gewinner's 50th Anniversary
Mr./Mrs. E. R. Grant
Mr./Mrs. Eugene C. Sunnen

In Honor of Mrs. Ellis C. Littmann's Birthday
Mr./Mrs. Henry L. Freund

In Honor of Mr. and Mrs. Claude M. Loper's Golden Anniversary
Mr./Mrs. Arthur C. Schuchardt

In Memory of Ethel Benert
Mr./Mrs. Arthur F. Boettcher, Jr.
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In Memory of Mrs. Merlin Bumpus
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MISSOURI BOTANICAL GARDEN BULLETIN
2345 Tower Grove Avenue
Saint Louis, Missouri 63110

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Missouri Botanical Garden Bulletin

On display or on sale, February is orchid month, Page 4

Dr. Raven Named To National Museum Board

Dr. Peter H. Raven, Garden director, was sworn in as a member of the newly created National Museum Services Board in ceremonies held December 16 at the Brooklyn Children's Museum in New York.

Mrs. Joan Mondale, wife of the Vice President, was among those sworn in. Participating was HEW Secretary Joseph A. Califano, Jr.

Dr. Raven's appointment was confirmed by the United States Senate on Tuesday, December 6. He is the only botanical garden representative to be named to the new national board, composed of 15 members.

The Institute of Museum Services was established through the Museum Services Act (Title II of the Arts, Humanities and Cultural Affairs Act of 1976), which was signed into law October 8, 1976. This legislation is the first to provide direct assistance for the nation's museums, which are visited by 300 to 500 million people each year.

The Museum Services legislation was enacted to "encourage and assist museums in their educational role; to assist museums in modernizing their methods and facilities so that they may be better able to conserve our cultural, historic and scientific heritage; and to ease the financial burden borne by museums as a result of their increasing use by the public."

Mrs. Lee Kimche, former executive director of the Association of Science-Technology Centers, is director-designate of the Institute. "Of utmost importance," Mrs. Kimche noted, "is the fact that the legislation authorizes for the first time, federal assistance to defray museums' operating expenses."

The Institute of Museum Services has been formally established within the U.S. Department of Health, Education and Welfare, reflecting the important role museums play as non-traditional educational resources. The Institute will operate in close cooperation with the Office of the Secretary of Education.

Dr. Peter H. Raven, right, Garden director, during swearing-in ceremonies for the National Museum Services Board, held recently at the Brooklyn Children's Museum in New York. Among those also named to the national board are, from left, Mrs. Joan Mondale, wife of Vice President Walter F. Mondale; and Mrs. Nancy Negley, president's advisor, San Antonio (Tex.) Conservation Society.

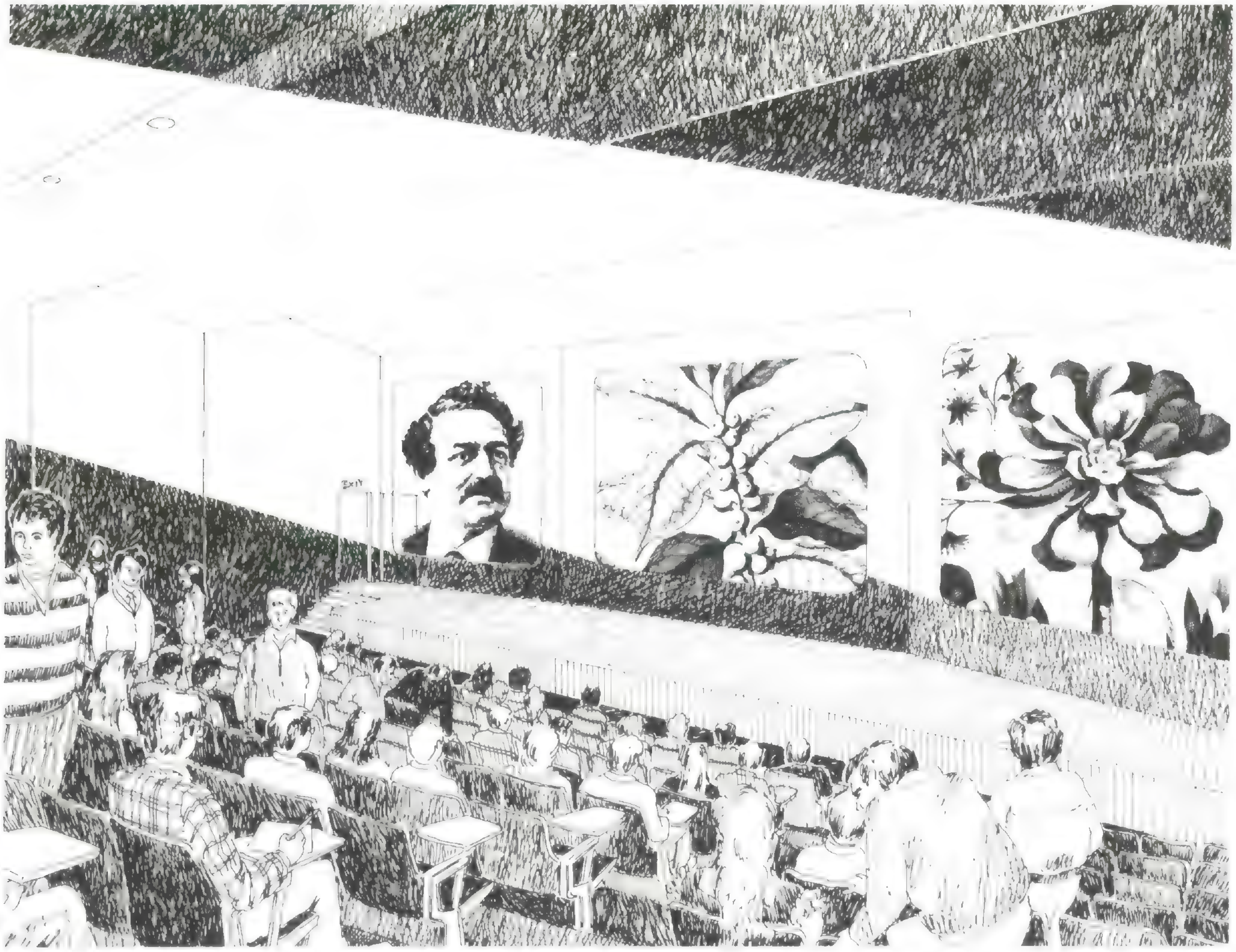
Dr. Raven joins 14 other Museum Services Board members appointed by President Carter, who with five ex-officio representatives of federal agencies concerned with art, science and education, comprise the 20-member board. The appointed members of the board represent a broad spectrum of museums, including art, history, technology and science museums, as well as children's museums, botanical gardens and zoos.

A major activity of the new Institute will be the administration of a grant program to museums for improving museum services. Specific program priorities and guidelines were discussed by the new Board of the Institute of Museum Services at a meeting in New York in mid-December.

As a board member, Dr. Raven will participate in the development and implementation of these policies, as well as supervising the Institute's programs when it begins formal operations in early 1978.

Volume LXVI Number 2
February 1978

Capital Campaign Reaches $3.3 Million



A new 300-seat auditorium, part of the Garden's planned $5 million Education/Visitor Orientation Center, will make possible expanded educational programs for children and adults.

The Garden's $6 million capital improvement campaign has reached the $3.3 million mark in contributions and pledges, it was announced to the Board of Trustees in December by Robert R. Hermann, general campaign chairman.

"The drive has completed the first one-third of its solicitation effort," said Mr. Hermann. "The next phase is now beginning and if we are able to reach everyone with our story, we will have the $6 million by the fall of 1978."

This project is one of the most ambitious and forward looking in the 119-year history of the Garden. It represents the final phase of the Garden's master plan.

The major component of the new construction is the proposed Education/Visitor Orientation Center. This facility will provide additional space for classrooms and an auditorium so that expanded programs can be offered for children and continuing education for adults. Adjacent lighted parking will facilitate nighttime use for classes, lectures, films and shows. The new building will increase the Garden's ability to improve and expand its services as an international center for botanical research, education and display.

According to the construction schedule, ground will be broken early in 1979. It is expected, if all goes as planned, that the building will be dedicated and opened in 1980.

Spring Garden Workshop Scheduled For March 4-5

The Sixth Annual Spring Garden Workshop will be held in the Floral Display House on Saturday and Sunday, March 4-5, 1978. The hours of the workshop are 11 a.m. to 4:30 p.m. on Saturday, and noon to 4:30 p.m. on Sunday. New ideas in gardening will be presented and literature will be available to assist in gardening this spring. A great deal of effort has gone into planning by the staff and in addition, commercial exhibits will be available to help you with your gardening problems. There will be a special small bulb display of some of the more unusual bulbs not commonly found growing in the St. Louis area. Soil types and methods of improving them will be discussed. Staff and Answermen will answer any garden questions, particularly those oriented to problems dealing with the outdoor garden. A special section will be devoted to indoor plants and their care.

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Mo. 63110. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign.

Ron Liesner, Investigator

Ron Liesner of the Garden's botany department is a very important individual.

And therein, as they say, lies a tale:

For many years, one of the Garden's principal focal points in collecting herbarium specimens and research has been the New World tropics. This is understandable, because the tropics afford greater species diversity in a smaller geographical area than the temperate zones. For example, Panama, only half the size of Missouri, has about four times the number of plant species. There are more species of ferns in Costa Rica than all of North America north of Mexico. Current statistics paint only a sketchy figure of the richness of the tropics, since botanical exploration there is still in a preliminary stage: discoveries of new species are almost a daily occurrence.

A further reason for the importance of rapid collection and investigation of the tropics is the rapid rate of land development, ensuring the destruction of most natural forests before the end of this century.

As one might guess, collections from the tropics present unique problems and create a special dilemma for institutions handling them. The recent increased specialization of taxonomists who usually work with a genus, group of genera or family; and the retirement of many older experienced generalists, who could identify any plant to the family level where it could be continued by a specialist, has created a gap in the process of plant identification. One cannot overestimate the importance of rapid identification of tropical collections. Interdisciplinary aspects of work done in the tropics, ranging from anthropological to ecological, zoological and geological studies, need an accurate assessment of plants involved. In addition to aiding other sciences, systematics itself is furthered by incorporating recent tropical collections into herbaria. Often the collections themselves are the tools used by a botanist to familiarize himself with the flora of an area, since many countries have no published flora. Even for those botanists not collecting in the tropics, species collected there provide valuable information and links toward unraveling the threads of botanical order. New species yet to be discovered in the tropics will provide clues to the further understanding of plant evolution, phylogeny, and phytogeography.

Ronald Liesner

All these factors combine to make Ron Liesner of the Garden's botany department a very important individual — both to the Garden and to the entire field of systematic botany. Ron trained himself in general identification of plants by devoting many hours of his spare time to poring over tropical collections at the Field Museum of Natural History, Chicago. It is his responsibility to sort and categorize all the unidentified collections sent to the Garden, some 20,000 specimens each year. Many are sent here specifically because of Ron's expertise with unidentified tropical collections.

Ron sorts and categorizes the plants, referring many to experts on the staff or at other institutions. But because there are specialists for less than 10 percent of all the tropical plant groups, many plants would remain completely unnamed without the benefit of Ron's expertise and experience. Collections are first categorized by plant family according to certain characteristics. The collections of each family are then studied and plants identified by matching them with older, identified plant collections and published revisions. In this methodical manner, unnamed plants acquire names and added scientific significance. Although sometimes it is impossible to completely name a plant due to lack of previous collections or published description, the plant is made accessible to botanists and other scientists specializing in that group of plants. Thus, as a result of Ron's work, newly collected material of uncertain identity is dealt with, categorized and inserted to be used as a reference and a research tool.

In a letter to Ron, Daniel H. Janzen, presently a professor at the University of Pennsylvania, states, "In reference to your letter of inquiry of a month or so ago, I would like to make it emphatically clear that the determinations provided by you and other members of the Missouri Botanical Garden are essential for my research in Guanacaste Province, Costa Rica. I simply would not be able to do what I am doing without these determinations."

It has been said that the caliber of an institution is indicative of the caliber of people who work there. In this case, the Garden can feel very proud of the services to taxonomy and to the tropics that Mr. Liesner has rendered.

The Wardian Case

To acquaint Garden Members with new, select, and rare offerings available in the Plant Shop, the Bulletin will be featuring monthly selections in a continuing report entitled "The Wardian Case."

Although the cultivation of orchids has been a relatively recent development, the knowledge and love of this plant family can be traced through the centuries to the Orient and ancient Greece. It was the Greek philosopher Theophrastus who first named them *orchis,* from which the name orchid was derived.

The plantsmen of the 18th century initiated the interest in growing orchids for ornamental purposes. In 1731 *Bletia verecunda* was received in England, beginning the history of orchid importation and cultivation as it is known today.

During the month of February, the Plant Shop will be featuring a fine selection of orchids in bud or sheath, ready to provide you with weeks of enjoyment.

The Plant Shop is open daily 10 a.m. to 4:30 p.m.

Paphiopedilum *(hybrid)*

Angroecum sesquipedale

Orchid Show Opens February 4

"Botanicals" for beginners and "cultivars" for home culture will abound at this year's Orchid Show at the Garden! Orchids from the Garden's world famous collection which are suitable for home culture in the St. Louis area will be the feature of this year's show. Among them will be gorgeous corsage orchids (cattleya species and related hybrids), mottled-leaf tropical lady's-slippers (paphiopedilums), miniature cymbidiums and dancing ladies (oncidiums), evergreen dendrobiums, dazzling moth orchids (phalaenopsis), delightful epidendrums and an array of smaller botanical species from many exotic lands.

Information on where to purchase suitable orchids, how to care for them in the home, and where to learn more about them will accompany the special display which will be staged in the northern section of the Climatron. Flowering representatives of the rest of the Garden's collection of 700 different kinds of orchids from the world over will also be on display throughout the Climatron.

The Orchid Show, made possible in part through the cooperation of the Missouri Arts Council, will run from Saturday, Feb. 4, through Sunday, March 12.

Seiwa-En Benefit

The Japanese Garden Benefit, a very special event for a very special cause, is scheduled for Sunday, Feb. 26, from 5-9 p.m. Members have been asked to call 772-7600, extension 22, for details on ticket purchase.

A&E Fund Drive Begins February 6

The annual St. Louis Arts and Education Fund Drive will begin on Monday, February 6, 1978, and the Garden, as one of the fund members of the Arts and Education Council, is vitally interested in supporting the drive.

Howard M. Love, president and chief operating officer of National Steel Corporation, has been named chairman of the campaign, which has a goal of $1,800,000 — a 16% increase over 1977. Mr. Love said that the Arts and Education Council of Greater St. Louis is one of only three united arts' funds in America to receive National Endowment for the Arts Challenge grants in 1977. The $250,000 grant is to be matched by $750,000 of new money by 1979.

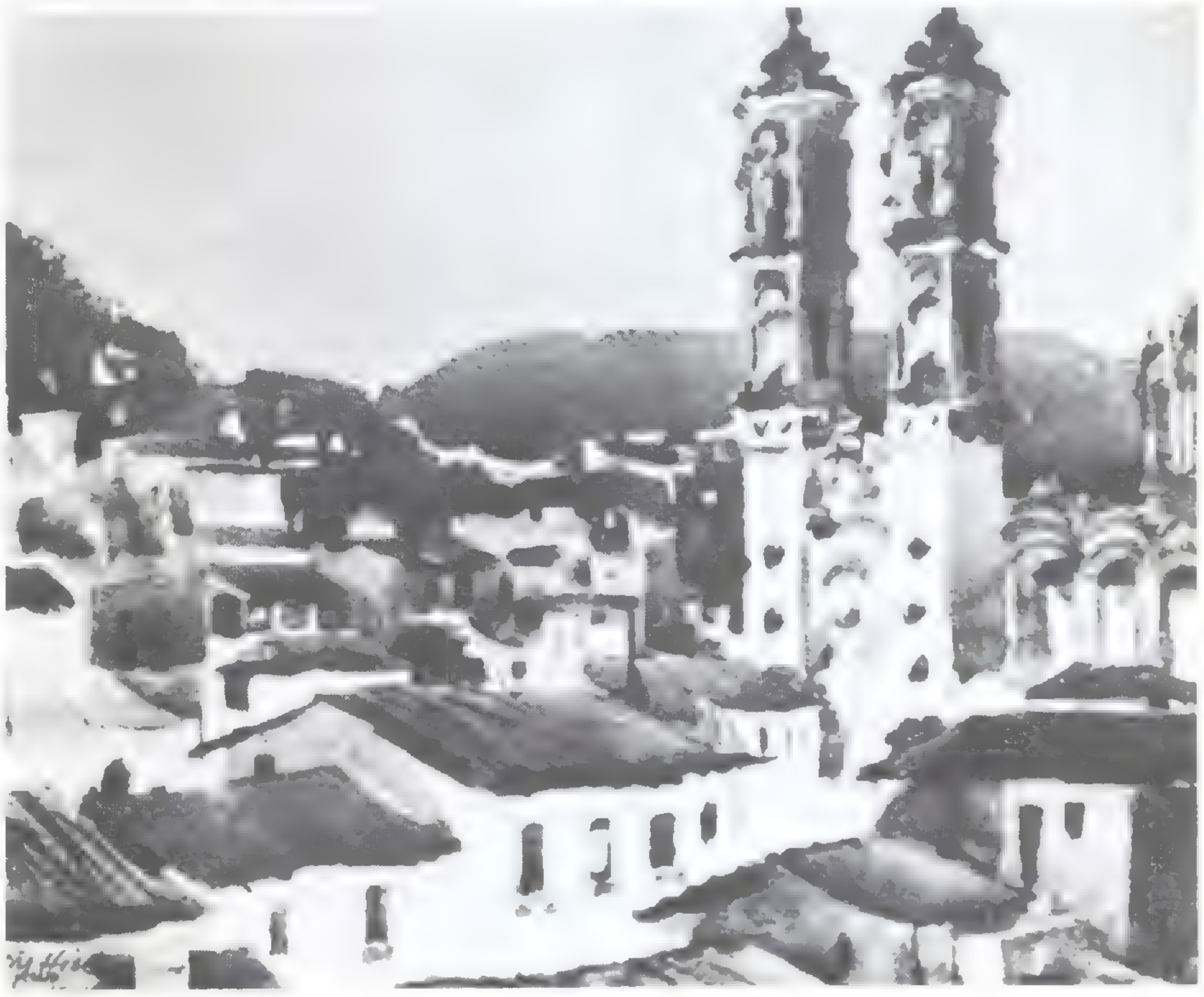
Mr. Love emphasized that the pressing need to increase private support for cultural and educational activities in St. Louis "places a special responsibility upon the business community here, because this is the source from which the greater portion of the goal must come." He said that, although most people believe that cultural and educational activities are self-supporting, this is far from the truth.

"St. Louis arts and education organizations do much better than the national average by consistently raising about three-quarters of their own operating budgets," he said. "Inflation and increased demand for services has been widening the gap between what the agencies can raise for themselves, by ticket revenues and contributions, and what they need to stay in business. It is the responsibility of this Campaign to bridge this gap, and thus ensure that the arts and education activities that are so important to our community, culturally, socially, and economically, are preserved," he explained.

St. Louis is one of about 30 metropolitan areas in America that has adopted a unified concept of generating private support for community cultural activities. The annual Arts and Education Fund Campaign is conducted throughout Metropolitan St. Louis by the Arts and Education Council, a federation of 118 cultural and educational organizations that was formed in 1963.

Member organizations fall into two categories: twelve which derive direct financial support from the Fund, and more than 100 regular and associate members who use the common services of the Council, such as printing, mailing, and promotion.

Tom Hill, Artist, To Present Lecture



A Tom Hill watercolor – uniqueness in approach and method

Tom Hill, a member of the American Watercolor Society and National Academy of Design, will present an illustrated slide lecture and watercolor painting demonstration at the Garden on Friday, March 17, at 7:30 p.m. Mr. Hill is a resident of Tucson, Arizona, and will come to St. Louis under the sponsorship of the St. Louis Artists' Guild. He is an instructor who brings a wealth of skill, experience and sensitivity to his classes, and offers his students a unique opportunity to learn his color approach and methods.

Mr. Hill will follow the lecture with two daytime classes Saturday and Sunday, March 18 and 19, open to the first 35 persons who register. For further details, information, and registration please call the St. Louis Artists' Guild, 961-1246.

Members Getaway Weekend

On March 4-6, visit the Philadelphia Flower Show, now rated as the best in the country; Morris Arboretum; and Longwood Gardens. Bob Dingwall, Chief Horticulturist at the Garden, will be the tour escort. For more information, please call the Member's Office, 772-7600, extension 25.

Members Are Special Pe

Mrs. Carol Houghton models one of several ensembles from The Shop for Pappagallo during the fashion segment of a Members' Fall Show Preview Party.

Other fashions during the Preview Party are modelled by, below, from left, Mrs. Nora Stern, president of the Executive Board of the Members; Mrs. Carol Houghton; Mrs. Jane Coultas; and Mrs. Tatie Reese.

ple

Santa Claus, a helpful elf and one small visitor take part in a children's program during the Poinsettia Preview Party.

Garden members enjoy the refreshment side of a private party held for high level members prior to the 1977 Fall Extravaganza Flower Show.

Mrs. Florence Morris, a Henry Shaw Associate, serves as honorary hostess at the private, pre-Fall Show party.

New Volunteer Group Formed For Japanese Garden

With spring rapidly approaching, concern at the Garden is turning toward the many outdoor tasks which will require great attention once the weather moderates and green things begin to appear. One area which will be in particular need of care is the one-year-old Japanese Garden development.

To address this new and very real responsibility, a group of volunteers is being formed to be specially trained to assist in maintenance of the Japanese Garden.

Training sessions will include a slide presentation illustrating actual gardens in Japan, with individual attention to the techniques used in maintaining a Japanese garden. There will be talks and demonstrations concerning pruning, mulching, gravel raking, and general comments on keeping the garden tidy. Each volunteer will be given a special area to maintain. Special lectures will be given on the history of our Japanese Garden so that volunteers will be prepared to answer questions that visitors might ask.

The training sessions will take place on Monday, February 20, and Monday, February 27, from 10 a.m. until noon, in the auditorium of the John S. Lehmann Building. Those interested in joining this group have been asked to contact Carol Taxman at 772-7600, extension 53.

Women Of Achievement

Two devoted friends of the Garden — Lucianna Ross and Betty Sims — have been named 1977 Women of Achievement by the St. Louis *Globe-Democrat.* The Garden's sincere congratulations are offered for this well-deserved tribute.

Among her many other achievements, Lucianna has served for many years as a guide at the Garden, and was co-chairman of the guide program for two years. Betty is one of five volunteer buyers who serve the Garden Gate Shop. She has also been active in the establishment of the Arts and Education hotline, through which teachers contact the Arts and Education Council to determine resources available through various agencies, including the Garden.

The Garden joins the *Globe-Democrat* in saluting Lucianna and Betty as 1977 women of exceptional achievement.

Members' Lecture Series

The Spring Lecture Series for members has been developed into a very interesting and exciting program. Each lecture will be presented at 10:30 a.m. and 8:00 p.m. on Wednesdays, March 8 through April 19. The series will include lectures and demonstrations encompassing the various ways in which people use plants in art, medicine, agriculture, crafts, etc. Further information will be forthcoming to all members in a detailed brochure.

Dr. Thomas B. Croat

Dr. Croat Appointed To New Curatorship

Tom K. Smith Jr., president of the Garden Board of Trustees, has announced the appointment of Dr. Thomas B. Croat as the first Paul A. Schulze Curator of Botany.

The new curatorship, Mr. Smith said, honors the late Paul A. Schulze, for many years the owner of a St. Louis dairy products company. A third of Mr. Schulze's estate was left to the Garden and added to its endowment program, Mr. Smith added.

Dr. Croat, a member of the Garden's staff since 1967, received his Ph.D. from the University of Kansas. For his first seven years at the Garden, his activities have centered on a study of the plants of Barro Colorado Island, a Smithsonian Institute research center located in Gatun Lake of Central America. The three-year study included numerous collecting trips to Panama. Thousands of Dr. Croat's field observations and specimens will provide the basis for his soon-to-be-published book, "Flora of Barro Colorado Island." This illustrated book will serve as a guide for approximately 1,360 species of plants on the island.

Dr. Croat is an adjunct faculty member of Washington University and holds memberships in many national and international scientific societies. He is the recipient of numerous research grants, which have resulted in more than 25 published scientific papers.

Mr. Smith said the curatorship is similar to a university professorship, in that "a curator is responsible for the care of a collection of plants, adds to the collection by gathering specimens on field expeditions, and studies the specimens to increase the knowledge of plants they represent."

Mr. Smith added that the Garden's collection consists of more than 2.5 million dried specimens preserved for scientific study.

In 10 years Dr. Croat has added more than 40,000 individual plants to the Garden's herbarium. By exchanging duplicates of the plants with other botanical gardens and universities, he is responsible for the addition of well over 100,000 more specimens to the Garden's herbarium collection.

Dr. Peter Raven, director of the Garden, said Dr. Croat's collections represent expeditions to nearly all of the countries of Latin America and Madagascar in East Africa.

FORGET-ME-NOT
HOLLYHOCK
DOUBLE MIXED
5¢
STANDARD

To cheer the dreary winter days, why not force some branches? Apples, azaleas, flowering quince, maples, plums, forsythia and pussy willows will all force easily. Select plants which need pruning and with pruning shears, remove two to three foot branches, a quarter of an inch in diameter at the base. Bring branches into the house and immerse in a tub of warm water for half an hour. Remove from water and make a two to three inch slit at the end of each branch. Place in a container in an area where the temperature is approximately 65 degrees. As soon as buds begin to open and show color, arrange in containers. Place in good light, which will intensify the colors.

Some of the branches will root and can be potted in containers. Place in a cool area with temperatures kept above freezing until time to plant outdoors. This is also an excellent time for taking cuttings of shrubs or evergreens you wish to propagate. Select cuttings six to eight inches long from good wood. Dip the cuttings in a rooting hormone and place in a mixture of one part peat moss to three parts perlite. Keep the mixture moderately moist, providing high humidity by enclosing them in a plastic bag or covering with plastic. Keep in an area where the temperature is 75 to 80 degrees. Bottom heat from a heating pad will insure better rooting. Cuttings should be well rooted in four-six weeks at which time they can be potted and placed in a hotbed or cold frame outdoors for planting later.

Geranium Seeding

Geranium seeds started this month will produce flowering plants by the 24th of May. Select fresh seed and sow in the normal manner, placing in an area where temperatures are about 70 degrees. Seed should be lightly covered and kept moderately moist. Germination should occur in 10 to 14 days and will continue for two weeks before all seedlings are germinated. When seedlings produce a second or third pair of true leaves, they are ready for transplanting into individual pots. Seedlings should be given good light and some sun or artificial light for 12 to 14 hours to encourage growth. Geraniums grown from seed are available in a wide range of colors, are compact growers, self branching, and continue to flower during the summer. The seed geraniums are superior to many of the older varieties grown from cuttings.

Hobby greenhouses require more attention as plants begin to grow and day length increases. Check to be certain that insects are under control. Control white fly by using the new Pyrethrin SBP 1382, applying underneath the leaves as well as on the top. Check for red spider, tiny mites which feed by sucking the juices and are often first noticed because of a fine webbing over the plant. Pentac alternated with Kelthane applied once every three days for at least four applications will control red spider. Plants which have become potbound should now be moved into containers at least two sizes larger. Start gloxinias, begonias and caladiums for later use. Sow seeds of geraniums, impatiens, begonias followed later by some of the annuals which require less time to come into flowering. Seedlings should be sown in sterile mix, such as Jiffy Mix, barely covering the seed and keeping it moderately moist until germination occurs. Seeds do best in a temperature of 75 to 80 degrees, supplied with bottom heat which will maintain uniform soil temperatures. Transplant seedlings as soon as the second or third pair of leaves are showing, spacing adequately. Removal of the growing tip to cause branching in some may be required several weeks after the initial planting stage.

Spring Bulbs

Spring bulbs such as tulips and daffodils should now be forcing readily, and as the month progresses, less time is required for bringing indoors until flowering. Gerbera, which tolerates hot, dry summers, is an excellent plant for growing in the St. Louis area. Seed should be started this month and takes approximately 10 to 14 days for good germination. Transfer seedlings to three-inch pots where they can be grown. In late April plants can be set outdoors in a permanent area where they will start flowering and continue flowering all summer. They make excellent cut flowers for floral arrangements and come in a wide range of colors. Large plants can be potted in the fall and carried through the winter and, if given regular feedings of liquid fertilizer, will reward the grower with constant blooms throughout the winter months for floral arranging or for decorative pots indoors. Impatiens, which come in a wide range of colors, should be started late in February and sown on Jiffy Mix; do not cover the seed as good light is needed for germination which takes 14 to 20 days. In growing seedlings watch for damping off, a bacterial disease, which can be extremely detrimental. If damping off is apparent, apply a fungicide to the pot immediately and remove infected seedlings. Give plenty of air and keep on the drier side for a day or two.

(Continued on Page 10)

(Continued from Page 9)

Vegetable Plants

Vegetable seeds should be ordered this month and, in fact, early cool crops should be started either indoors or planted directly in the garden. Peas sown in February will give a good crop in early spring. Cabbage, cauliflower, brussels sprouts and spinach sown this month will be ready to eat in late March or April. During mild weather, prune grape vines and thin fruit trees. Remove sucker growth and head back branches to control height and increase flower spurs. Remove damaged wood. Do not remove mulches during mild spells as it is much too early. Wait until late in March before doing this. Check plants for heaving due to heavier frost, and firm back into the soil. Check along foundation plantings at roof overhangs to make sure soil has not dried out and if need be, take the hose and water heavily on a mild day to insure sufficient moisture. Areas where salt has been used around icy winter walks should be heavily watered in mild spells to carry away excess salt and prevent burning.

—Robert J. Dingwall
Chief Horticulturist

Susie McNamara of the Garden staff, left, works with Gary Williams and Michele Williams, students from Mt. Carmel School participating in the Garden-St. Louis Board of Education Magnet School project.

A Member's Guide To Garden Organizations

Because of their strong interest in botany, horticulture and related subjects, Garden members are active in a wide variety of plant societies and garden clubs. Many members, although interested in becoming more active in garden organizations, have difficulty determining the addresses or names of society officials. As a member service, the following is a listing of popular plant societies and garden clubs.

PLANT SOCIETIES

The Rose Society of Greater St. Louis, Pres. William E. Ware, 5340 Springtail Dr., St. Louis, MO

American Rose Society, Box 30,000, Shreveport, LA 71130

St. Louis Herb Society, Pres. Mrs. Wm. Hallett, 134 Valley Rd., Webster Groves, MO 63119

Herb Society of America, 300 Massachusetts Ave., Boston, MA 02115, Mrs. W. B. Clark, Secretary

Greater St. Louis Chapter International Hobby Greenhouse Club, Mrs. Robert Slifer, 1450 Carmen Rd., St. Louis, MO

National Hobby Greenhouse Assoc., Box 695-F, Wallingford, CT 06492

The Boxwood Society of the Mid West, Mrs. Mary Gamble, 23 Bon-Price Terraces, St. Louis, MO 63132

The American Boxwood Society, Box 85, Boyce, VA 22620

Henry Shaw Cactus Society, Mrs. Betty Demzik, #7 Frontenac Estates, St. Louis, MO 63131

International Cactus and Succulent Society, Box 691, Breckenridge, Texas 76024

American Horticulture Society, Mount Vernon, VA 22121

St. Louis Horticultural Society, Mrs. Jessie Busch, 205 Slocum, St. Louis, MO

African Violet Society Of Greater St. Louis, Mrs. Fred Tretter, 4988 Scholmyr, St. Louis, MO

The African Violet Society of America, P.O. Box 1326, Knoxville, TN 37901

Orchid Society of Greater St. Louis, Mrs. John Niess, 77 Hawthorne Ct., Kirkwood, MO 63122

American Orchid Society, Inc., Botanical Museum of Harvard University, Cambridge, MA 02183

The Bromeliad Society, P.O. Box 3279, Santa Monica, CA 90403

Organic Garden Club, Mrs. Chas. Belt, 2559 Oak Spring Lane, St. Louis, MO 63131

Bonsai Society of Greater St. Louis, Mrs. Landon R. Hill, 1029 Camelot Gardens Dr., St. Louis, MO 63125

Bonsai Clubs International, 445 Blake Street, Menlo Park, CA 94025

The American Bonsai Society, 953 South Shore Drive, Lake Waukomis, MO 64151

Greater St. Louis Dahlia Society, Ellis Evans, 5460 Delmar, St. Louis, MO

Great Rivers Chapter of The American Holly Society, Mary Nell McDaniel, 705 S. Busey Ave., Urbana, IL 61801

The Holly Society Of America, Inc., 407 Fountain Green Road, Bel Air, Maryland 21014

Indoor Light Garden Society Of America, Mrs. James C. Martin, 432 Powell Drive, Bay Village, OH 44140

American Daffodil Society, 89 Chichester Rd., New Canaan, CT 06840

American Fern Society, Dr. James D. Caponetti, Dept. of Botany, Univ. of Tennessee, Knoxville, TN

American Gloxinia and Gesneriad Society, Mrs. J. W. Rowe, Box 174, New Milford, CT 06776

American Gourd Society, Box 274, Mount Gilead, OH 43338

American Hibiscus Society, Mrs. Gorden Fore, Rt. 1, Box 491 F, Fort Meyers, FL 33905

American Hosta Society, Paul Aden, 980 Stanton Ave., Baldwin, N.Y. 11510

American Penstemon Society, Howard McCready, 1547 Monroe St., Red Bluff, CA 96080

American Ivy Society, 128 West 58th St., New York, NY 10019

American Camellia Society, Box 1217 Fort Valley, GA 31030, Milton Braun, Secretary

American Begonia Society, Inc., 6333 W. 84th Pl., Los Angeles, CA 90045

American Hemerocallis Society, Signal Mountain, TN 37377

The American Magnolia Society, Mrs. Virginia Melnick, Rt. 5, Box 532, Cocord Road, Asheville, NC 28803

American Peony Society, Greta N. Kessenich, 250 Interlachen Rd., Hopkins, MN 55343

American Rhododendron Society, Mrs. Bernice Lamb, 2232 N. E. 78th Ave., Portland, OR 97213

American Rock Garden Society, Milton S. Mulloy, 90 Pierpont Rd., Waterbury, CT 06705

Cymbidium Society Of America, Inc., Box 208, Whittier, CA 90608

The Delphinium Society, Phillip H. Smith, 7540 Ridgeway Road, Minneapolis, MN 55426

National Chrysanthemum Society Inc., 394 Central Ave., Mountainside, NJ 07092

National Fuchsia Society, 10934 E. Flory St., Whittier, CA 90606

The North American Lily Society, Inc., Mrs. Betty Cliford, Rt. 1, Box 395, Colby, WI 54421

American Iris Society, Carol Ramsey, Secretary, 6518 Beachy Avenue, Wichita, KA 67206

Cactus/Succulent Society of America, Inc., 2631 Fairgreen Avenue, Arcadia, CA 91006, Virginia Martin, President.

GARDEN CLUBS

Men's Garden Club of America, 5360 Merie Hoy Rd., Des Moines, IO 50323

Men's Garden Club of Webster Groves, William Macy, 205 Newport Avenue, St. Louis, MO 63119

Men's Garden Club of Kirkwood, Lloyd Clay, 42 Thorncliff Lane, St. Louis, MO 63122

Men's Garden Club of Ritenour, Raymond Winking, 2637 Terri Lee Court, St. Louis, MO 63114

Men's Garden Club of Richmond Heights, Ralph A. Yourtree, 7418 Arlington Dr., St. Louis, MO 63117

Men's Garden Club of Florissant, C. W. Cherry, 75 Eldorado Dr., St. Louis, MO 63031

Men's Garden Club of Parkway/Chesterfield, Hollis D. Sisk, 329 Ridge Meadows Drive, St. Louis, MO 63017

Men's Garden Club of South County, Edward C. Dreas, 4866 Longtree Drive, St. Louis, MO 63128

National Council of State Garden Clubs, Inc., 4401 Magnolia Avenue, St. Louis, MO 63110

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MISSOURI BOTANICAL GARDEN BULLETIN
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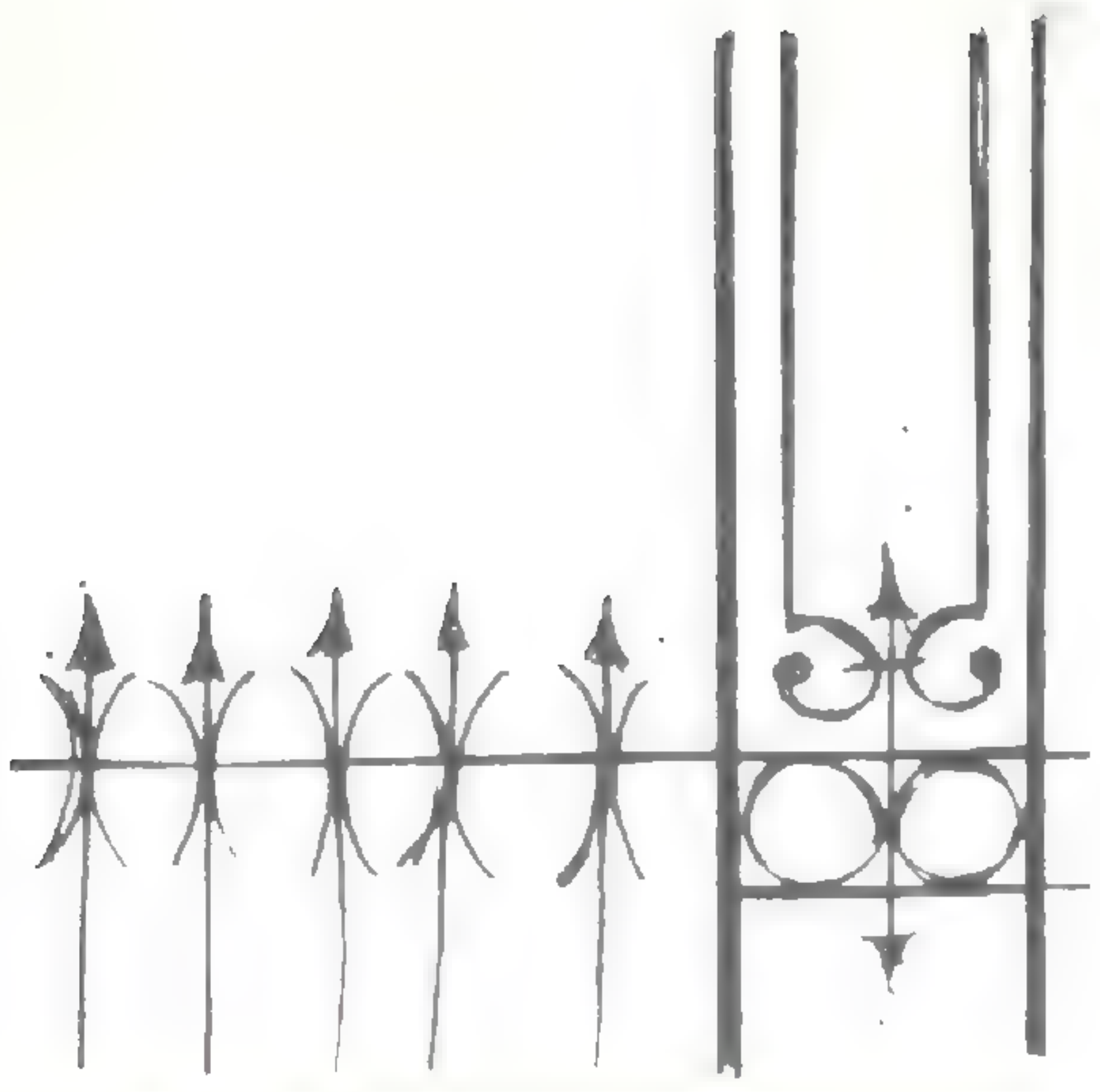


Garden Drive Passes Halfway Mark

The Garden's $6 million capital improvement fund drive, launched last August to support construction of a new Visitor Orientation/Education Center and other Garden improvements, has exceeded the half-way point in campaign pledges and contributions, it was announced by Robert R. Hermann, campaign chairman.

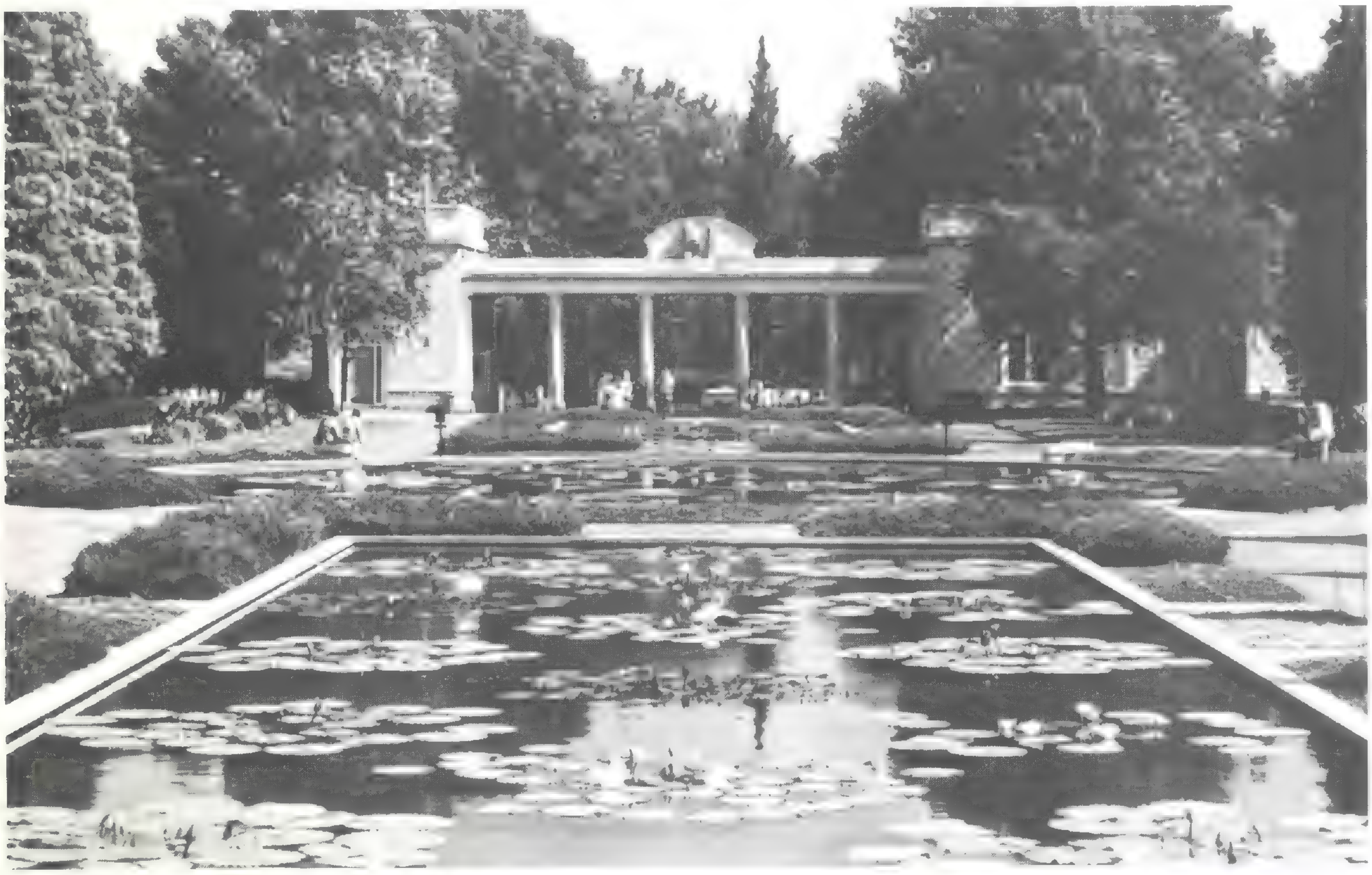
"As of the middle of February," Mr. Hermann said, "we have received contributions and pledges totalling $3.6 million — 60 per cent of our campaign goal of $6 million. If this level of strong support continues, both from individuals and organizations in the St. Louis area, we should reach our goal by the end of the year."

Major gifts pledged recently to the campaign include a $30,000 contribution from General Dynamics Corp., a $30,000 contribution from Pet Inc. and a $25,000 gift from the Mallinckrodt Fund, Inc.

"Because of this kind of support from individuals and philanthropic organizations in the St. Louis area," Mr. Hermann said, "one segment of our campaign — the Advance Gifts Committee — has acquired contributions and pledges representing 86 per cent of its goal."

The campaign was launched last August to generate funds to be used for capital construction and various outdoor improvements at the Garden. The major component is the "Crystal Palace," a building to house the educational programs, visitor orientation facilities, and a new and enlarged floral display hall.

(Continued on Page 2)



Upon completion of the Garden's new Visitor Orientation/Education Center, the historic Main Gate complex, left, will no longer serve as the principal entrance for the hundreds of thousands of visitors who come to the Garden each year. The Main Gate, however, will remain intact as a significant and historic element of the Garden grounds.

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March 1978

GARDEN DRIVE . . . (Continued from Page 1)

Other components include a building to house all of the Garden's support services and expanded parking accommodations.

The campaign is only the second capital drive in the Garden's history. It was conceived as the final phase of a Master Plan, initiated in 1972, which has resulted in a near doubling of all Garden activities.

During the past five years, the display houses have been renovated and the collections enlarged. The Anne L. Lehmann Rose Garden and the 14-acre Japanese Garden have been created. The Shoenberg and the Shapleigh Fountains have been constructed and a start has been made on refurbishing and restoring the Garden's architectural treasures.

In the same period, attendance has increased to nearly 400,000 visitors annually, membership has climbed from 2,000 to more than 9,000, and the number taking part in the broad range of educational programs has exceeded 40,000.

The new facility will permit an increase in programs offered to the public, both cooperative programs with the St. Louis Public Schools as well as adult programs. Adjacent, lighted parking will make possible expanded evening events and facilitate expanded show schedules for the floral display area.

New Gate Prices Effective March 1

To meet the rising costs of operation, the Garden Board of Trustees has approved a general increase in the Garden gate admission price schedule, effective March 1. Under the new schedule the current adult admission price of $1.50 will be raised to $2.00 and the children's rate of $.50 to $.75. In addition, the children's category covering six- to 12-year-olds will be expanded to cover six- to 16-year-olds.

Gate receipts realized under the new pricing schedule will also present the Garden with the opportunity to generate additional revenue from another source. The National Endowment for the Humanities (NEH) has stipulated that revenue increases resulting from the new schedule may be used as matching funds in connection with a potential $500,000 NEH-Garden grant.

The gate admission price increases are the first at the Garden since 1976.

Education Courses

Spring classes are filling up, so please check your brochures for the courses of your choice. A new course will be offered in April which is designed to introduce fundamental herbarium methods.

Renovation Completed at Tower Grove House

The renovated dining room of Tower Grove House has been completed. Resplendent with new wallpaper and an oriental rug, the room is restored to its Victorian authenticity. Tower Grove House hours are 10 a.m. to 4 p.m. daily; fee $1.00 adults, $.50 children; group rates available; members free.

Mrs. Jane Coultas, manager of Tower Grove House, inside the home's recently-renovated dining room.

CAMELOT and 'Conservation'

Many of the *Bulletin's* readers may associate the word "conservation" with the preservation of nature and of endangered plants and animals. In library and museum practice, however, "conservation" has another specialized meaning: the maintenance, preservation, and restoration of library materials and museum artifacts.

For many years, the Garden's library has devoted a considerable amount of time and resources to the conservation of the many treasures in its collections. This year, through a generous grant from the Arts Development Committee of the Arts and Education Council of Greater St. Louis, the staff of the library's bindery will be able to conduct preservation work on several hundred volumes spanning the first 300 years of printing. Treatment of these volumes can range from the simple cleaning of leather binding to a full restoration of a deteriorated volume. In the latter case it is frequently necessary to remove the existing binding, repair torn pages and strengthen folds, clean individual leaves and plates, resew the book, and replace the binding with one similar to the original in materials, style, and techniques. Other materials are being put in special pamphlet folders or storage boxes to prevent further deterioration.

Because the library is such a rich storehouse of scarce botanical literature, the support of the Arts & Education CAMELOT fund in continuing our conservation efforts is significant not only to researchers on the Garden's staff but throughout the entire international botanical community.

'Swing into Spring'

The Garden Gate Shop is bursting with new merchandise purchased in January at the Atlantic City Glass and China Show and the Gift Market in New York. New lines purchased include handsome enameled cookware, charming teapots for fun or fancy parties, and new linens. By request of our many customers, a new line of cards will be introduced for those special holiday events. There is a new line of jewelry in addition to the favorites that we carry. The book collection includes a variety of new books for spring.

New items also include pots, baskets, plates, silver, brass and pewter. Colors are muted in the new china line, which include soft salmon and jade green. Spices, jams, jellies, British candies are also available — the perfect gifts are all new in the Garden Gate Shop.

Easter this year will be preceded by the Garden Gate Shop's annual open house on Wednesday, March 8. Cocktails will be served after 5 p.m.

Come join our celebration of spring. If you are interested in volunteering in the Shop, please call. See you all on March 8!

Members' Tour of English Homes and Gardens

Join John Elsley, the Garden's curator of hardy plants, for this delightful trip to London and the surrounding English countryside. This will mark the third such trip to England offered by the Garden.

The tour leaves St. Louis on Friday, May 19, arriving in London on May 20. The Tower Hotel will be home for the next four days with visits to gardens in Sussex and Berkshire, and a full day at the outstanding Chelsea Flower Show. On May 24, we travel to Dorset and stay at the Post House Hotel in Sherborne. Excursions will be made to Tintinhull House, Montacute House, Stourhead, and Barrington Court, which boast spectacular gardens of their own.

On May 27, we move on to Derbyshire where accommodations will be at the Palace Hotel in Buxton. Visits to Chatsworth House, Haddon Hall, Hardwick Hall and the Derby China Museum are planned from this point. On May 30, we leave for Suffolk and the Angel Hotel at Bury St. Edmunds. In this area, we will see Melbourne Hall, Blicking Hall, Heveningham Hall, and Bressingham Gardens.

On June 2, we return to London. A special tour of the Tower of London is planned, conducted by R. Allen Brown, Professor of Medieval History at Kings College. We return to St. Louis on June 4.

Full English Breakfast included throughout the tour, all lunches but two, and 12 dinners. Schedules subject to variation.

Rates per person: $1975, double occupancy;
$2105, single accommodations.

Reservations limited. If you are interested and would like a brochure, please contact the Members' Office at 772-7600, ext. 25.

T. K. Smith, Jr. Reelected Board President

Tom K. Smith, Jr.

Tom K. Smith, Jr., who has headed the board for the past three years, has been re-elected president of the Garden board of trustees. Mr. Smith is senior vice-president of the Monsanto Company.

Other officers re-elected at the board's January meeting are Robert R. Hermann, first vice-president; Daniel L. Schlafly, second vice-president; and Charles W. Orner, secretary. Mr. Hermann is president of Standard Container Company. Mr. Schlafly is president and board chairman of the Arkansas Beverage Company. Mr. Orner is Garden controller.

The Wardian Case

The Plant Shop presents *Oxallis tricolor* 'Aureoreticulata' as the March feature in the Wardian Case. One of the more colorful of the 850 species in the Oxalidaceae family, *Oxallis tricolor* provides the grower with bright yellow and green foliage year 'round. For those who can provide proper cultural conditions, the plant will respond frequently with small, pink, bell-like flowers.

Because the distribution of the more decorative oxallis is widespread in the southern hemisphere, this pot plant performs best in our winter season, benefiting from the filtered sun and cooler temperatures. Extreme heat spells sure death and higher temperatures often induce a dormancy during which the plant dies back and awaits more favorable environmental conditions.

The soil should be kept moist at all times. Fertilize monthly with any well balanced plant food. Additional plants can be obtained by division.

The Plant Shop, retailing daily from 10 a.m. to 4:30 p.m.

Garden Takes Part In Rare Plant Study

The Garden and the Missouri Department of Conservation will work jointly to compile an index of all locations where plants considered to be rare or endangered in the state have been collected by botanists. There are currently 373 species on Missouri's list of rare and endangered plants, a list compiled by the Department of Conservation with advice from botanists throughout the state.

This program is coordinated by the Conservation Department's recently created Natural History Section, headed by Mr. John Wiley.

The initial portion of the new study is centered around a search of the Garden's herbarium and seven other herbaria with major holdings of Missouri plants. Each plant collection deposited in a herbarium has a label with the name of the plant, the collector, the date of collection, and sometimes additional information. In this study, a photograph is taken of each collection label, and the information transferred later to special forms. The final part of the project will be to place all information into a computer data bank. This will provide scientists with the most precise and up-to-date information available on the past distribution of these rare plants. In addition, the information will become a guide for determining which areas might still support wild populations of these plants.

Rick Daley, head of the Garden's Ecological Services Department, and David Spellman, research associate at the Garden, are the principal investigators for the study.

Oxallis tricolor 'Aureoreticulata'.

Herbarium Data, 1977

The Garden herbarium, a valuable scientific resource and one of the most complete collections of botanical specimens in the world, made more than 68,000 acquisitions and loaned more than 22,000 specimens to institutions and individuals during 1977, according to statistics compiled by herbarium staff members. What follows is a statistical summary of herbarium activities for 1977, with similar figures for 1976 included for purposes of comparison.

Acquisitions	**1977**	**1976**
Staff collections		
Originals	15,296	10,320
Duplicates, for exchange	49,300	31,290
Purchases		
Originals	11,708	13,285
Duplicates, for exchange	11,192	12,998
Exchanges	29,024	33,785
Gifts	12,001	5,459
Total acquisitions for addition to collection	68,029	62,849
Mountings		
Specimens newly mounted	86,296	99,046
Specimens mounted when received, stamped	3,511	4,309
Specimens newly inserted	89,807	103,355
Backlog (31 December)	15,099	20,582
Repairs		
Specimens repaired	23,405	10,208
Specimens stamped	26,662	797
Total	50,067	11,005
Loans sent, total	22,609	18,517
to U.S. institutions	17,980	14,289
to foreign institutions	4,629	4,228
to students	8,739	8,876
to professionals	13,870	9,641
Visitors, total	148	179
from U.S.	133	158
from abroad	15	21

Joni Duggins, Artist

The *Bulletin* has taken on a new look since December. We hope that you have noticed and enjoyed the whimsical drawings which have appeared these past months within these pages. They were done by a young woman on the staff who spreads a special kind of magic over all who know her. Joni Duggins, Special Events coordinator, plays many other roles as well. She has been a butterfly for the Plant Shop's spring sale and the man from outer space for the education session, "The Green Machine Experience."

Joni comes by her magical talents through her education and experience. She has taught arts and crafts at summer camps, and has been an art teacher. Her career at the Garden began as a volunteer in the Plant Shop two years ago. She was later hired part-time in Horticultural Services before becoming special events coordinator last summer.

In addition, Joni has done some excellent drawings for Erna Eisendrath's book, *Missouri Wildflowers of the St. Louis Area,* which will be published by the Garden in March.

Spring Flower Show

Get in the mood for spring by attending the Garden's annual Spring Flower Show March 18 through April 16. New features will include Japanese, rose, and patio gardens. Blossoms will cascade from hanging baskets, and shrubs and trees bedecked with blossoms will fill the Floral Display Hall. Tulips, daffodils, hyacinths, cyclamen, begonias, primroses, lilies, and geraniums all will add bright splashes of color to the display. Come join our celebration of spring. Hours: 10 a.m.-4:30 p.m. daily.

The Spring Flower Show is made possible in part through the cooperation of the Missouri Arts Council.

Highlighted during the spring show will be an exhibition of watercolors by the noted local artist, James Godwin Scott, whose work has focused extensively on scenes of the Soulard area of St. Louis and the Mississippi River. Mr. Scott, whose work can be found in private and corporate collections in Missouri and throughout the country, has studied with such notables as Robert Brachman, Frank Nuderscher and Jack Marriott.

1978 Members' Spring Lecture Series

People Using Plants is the theme of this series. Participants will explore the various ways people use plants in medicine, art, agriculture, sculpture, ornamental gardening, housekeeping, and the timetable of nature. The schedule includes:

March 8	"Herb Uses and Abuses"; Dr. Walter Lewis, Professor of Biology at Washington University, relates the medicinal purpose of plants.
March 15	"Plants as a Springboard to Creativity"; St. Louis watercolor artist, James Godwin Scott, demonstrates how one artist selects from nature in making a creative statement.
March 22	"Food, Famine, and Fantasy"; Ken Peck, Director of Education at the Garden, gives us a look at agriculture and the comparative energy levels required of man to obtain and produce food. Includes a special display of grains and spices.
March 29	"Gourdaculture" by Louan. A lecture/demonstration on sculpture work using gourds as the basic form. Includes a display of her unique artistic creations.
April 5	"20th Century English Gardens" by John Elsley, Curator of Hardy Plants. This slide presentation shows gardening as a visual art form, clearly expressed by the careful usage of plants.
April 12	"Housekeeping with Herbs" — Barbara O'Brien; "How to Plan and Plant an Herb Garden" — Madeline Stribling. Both ladies are members of the Herb Society and will conduct a panel discussion following their lectures.
April 19	"Surprises of the Seasons" by Lee Mason. An illustrated lecture depicts the beauty and exquisite handiwork of nature in plant life and animal life through the seasons. All photographed in and around St. Louis.

Spring Preview Party

The Spring Flower Show Preview Party will be held from 5 to 7:30 p.m. on Friday, March 17 in the Floral Display House. This special event for members will be sponsored by Lily Pulitzer of St. Louis, Gladders Barge Line, Inc., St. Louis Ship, Federal Barge Lines, Inc. and National Marine Service, Inc. A highlight of this show will be a special watercolor exhibit on display, featuring Soulard and the Mississippi by St. Louis artist, James Godwin Scott.

Gardening in St. Louis

Garden activities begin this month — the time to plant early crops. Many people are considering raised beds for growing vegetables and flowers. Raised beds are productive and you will wish you had built them sooner. Advantages are that the soil drains faster and warms up more quickly. This results in vegetables maturing earlier, weeding, watering and harvesting is easier, water soaks in rather than running off, earthworms thrive in the moist environment, yields of vegetables increase because the soil is deeper, gardens look neater, soil compaction is eliminated because you rarely step into the beds.

If your budget is tight, you can get by without wooden frames as the Chinese have done for centuries. Mix compost with sand and soil to build up beds six inches higher than the surrounding area. Beds without frames tend to erode where rainfall is heavy and to be somewhat drier than is desired for vegetables. Raised beds need not be expensive. Frames can be built from used or rough lumber and painted or dipped in copper napthenate, a wood preservative that is not toxic to plants. Do not use creosote or copper sulfate as these compounds can kill plants. Frames should be six inches deep and not more than four to five feet wide. This width allows the gardener to work from both sides without stepping into the bed and compacting the soil.

Wood Chips and Straw

One of the advantages of raised beds must be experienced to be appreciated. Gardeners who have clay soils know not to walk into the garden when the soil is moist and sticky. With raised beds you can scatter wood chips, sawdust or straw down the walkways to keep down weeds and to make the garden accessible at all times. You will find yourself starting the garden earlier and working it later in the year. It would be a mistake to fill frames with ordinary soil because it tends to crust and shrink away from the frames making thorough watering difficult. Mix sand, soil and compost, or dump in two inches of soil and dig in three inches of organic matter such as peat moss or well rotted manure. You will need to anchor the frames with stakes driven every four to six feet. Drive them outside the frame or you will be forever tangling with them when you spade the soil. Use galvanized nails in construction.

Early vegetables should be planted immediately to take advantage of the weather. Cabbage, cauliflower, brussels sprouts, spinach, onions, beets should be planted immediately and can then be harvested before late April. These plants, if planted later, will take longer to mature. Framed beds are also an ideal way to grow cut flowers for the home.

Foiling Insects

One method of preventing insect infestation is to use aluminum foil. Prepare the garden for planting, then place strips of aluminum foil over the area to be planted. Sink the edges in the soil to keep it from blowing away. Cut small slits and insert seeds into moist soil. If you have problems with snails, slugs or earwigs, scatter a small amount of bait under the foil. The foil tends to discourage certain kinds of disease-bearing bugs. The reflected light from the foil drives them away instead of allowing them to suck plant juices and inject disease organisms through the wounds.

Cantaloupe, melon, cucumber and squash are plants which benefit most from floral mulches because they are susceptible to bug-carried wilt diseases, especially when seedlings are young. Grow more on less land.

One of the earmarks of a good gardener is the ability to interplant small, fast-growing vegetables between rows of slower growing varieties. Where intensive gardening is practiced, there is little bare earth visible and this can be accomplished in raised beds as well. Suggested interplanting combinations are radish with parsley, curly cress with beets, endive with peppers, and mustard greens with bush beans. The fast growing vegetables are harvested, leaving space for the larger plants of the later maturing vegetables to develop. Wide, spreading crops, such as winter squash and pumpkins are often interplanted with sweet corn or popcorn. The close interplanting tends to shade the ground, cutting down on weed growth and helping to hold more moisture in the soil.

It is important in preparing the soil to add superphosphate. Add four to five pounds per thousand square feet, and three to four pounds of a balanced fertilizer such as 5-10-5 or 6-12-12 just prior to planting, working both in well.

In early April my new book, *The Garden Answers,* will be coming off the press. It answers more than 1,600 questions based on gardening in the St. Louis area over the last two years. There will be more information in the next *Bulletin.*

Plant Problems

A number of plant problems, due to the severe winter weather, will soon become evident. Similar to last year, *Magnolia grandiflora* leaves have turned brown and many will shed their leaves. Few trees were severely damaged last year as periodically this plant, although evergreen, can shed its leaves, produce new leaves and flower during the summer months. Blooms, however, are smaller than usual. Present indications are that roses have frozen back more severely. This was due in part to the wet fall, which kept plants growing so that they did not harden off as much as usual.

The prolonged snow period will have detrimental effects on some plants, such as azaleas, since the snow, although a good mulch, reflects the light, warming the part of the plant that is above the snow line, causing some killing. Gardeners are advised to wait until plants start to show new growth and then prune back to good wood. Don't remove the plants too early because plants can recover and make good growth during the spring and summer months, as experienced last year. Also, due to the heavy snow and ice, heavy use of salt along walks may require careful leaching by hosing water continuously over the area to prevent root damage.

Pruning of roses and removal of mulch should not be done until after the first of April. It is better to wait until all signs of cold weather are past and then gradually remove the mulch over a period of a week to 10 days. Then prune back the required amount, according to variety and the amount of damage. If pruning is completed by mid-April, roses will flower about the third week in May — normal for the season. By late April, most trees and shrubs should be leafing out and at that time one can begin the pruning to remove winter damage. It may be necessary in some plants to cut some wood that has not been damaged to balance the shape of the plant. Also, the severe winter again points out the need to apply good mulch as soon as possible around these plants and to make certain that by fall there is a mulch of six to eight inches deep around the base to prevent severe damage to the root system. Avoid overfertilization of plants which have been damaged. When plants are making good growth, if desired, a light application of balanced fertilizer such as 5-10-5 or 6-12-12 depending on the plants being fertilized can be applied.

—Robert J. Dingwall
Chief Horticulturist

Mark Your Calendar

Feb. 4-Mar. 12	Orchid Show continues—Climatron
Mar. 4-5	Spring Garden Workshop—Floral Display House
Mar. 11-Apr. 2	"Plants of the Bible" — Mediterranean House
Mar. 18/Apr. 16	"Prickly Pears of Desert Lands" — Desert House
Mar. 18-Apr. 16	Spring Flower Show — Floral Display House

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Mo. 63110. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign

Julius Boehmer, Jr.

With the death of Julius Boehmer in January, the Garden's herbarium lost a longtime, devoted volunteer. Mr. Boehmer had devoted many hours of time to the Garden's herbarium over a period of nearly 10 years.

He was a graduate of the Washington University School of Engineering and worked for Rice Stix Wholesale Dry Goods and then as engineer for St. Louis Water Division. A man of many talents, he enjoyed identifying trees and photography as hobbies. His talent with tools and wood led to many projects for the herbarium including construction of carts and stools. He will be missed by his many friends at the Garden.

Marguerita M. Jester, Restoration Consultant

Marguerita M. Jester, nationally known restoration expert, died in January following a lengthy illness. Her work in restoring Tower Grove House will long stand as a tribute to her knowledge and painstaking attention to detail.

Margo had served as a consultant for the Tower Grove House restoration since 1953. This house is considered one of the finest restorations in the area. Another such is Hanley House in Clayton, in which Margo was involved as well.

Margo, with her husband Roland, specialized in American antiques, English pottery and porcelain. They refused to be associated with any restoration that was not correct. Many such across the country serve as evidence of their expertise. She will be missed by her many Garden friends.

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2345 Tower Grove Avenue
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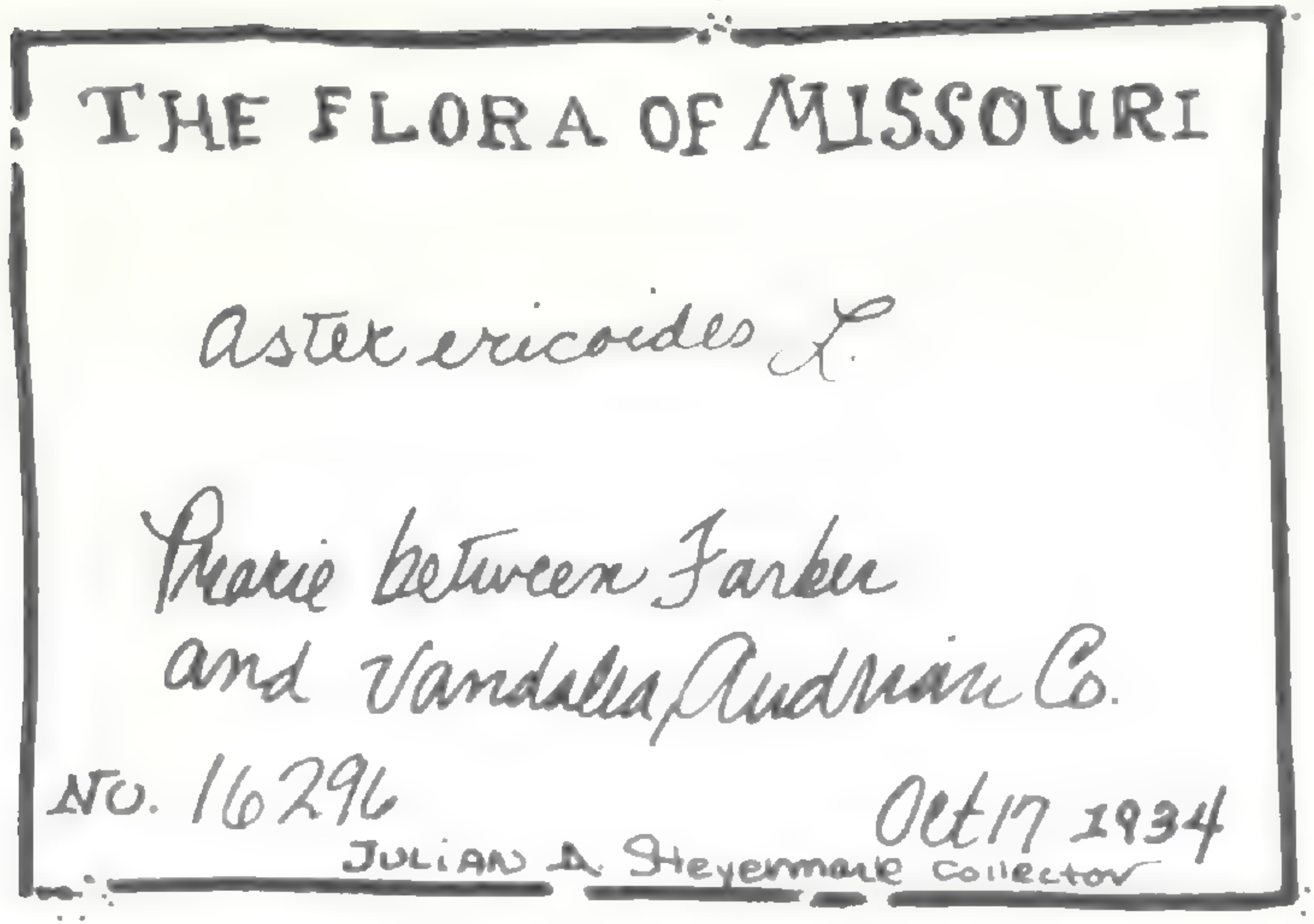


THE FLORA OF MISSOURI

Aster ericoides L.

Prarie between Farber
and Vandalia Audrain Co.

No. 16296 Oct 17 1934
JULIAN A. Steyermark Collector

Latin: The Living Language of Botany

Two ladies were waiting within the main entrance to the Climatron when one espied a woman approaching the last of the outdoor lily pools, heading in the direction of the Climatron steps. "My goodness," the first one said, "that's the lady on Sherwood in Webster Groves whose husband works at Monsanto." The other added, "She sure looks like one of the Elbert clan!" And the first rejoined, "Of course, it's Mary Elbert."

The three ladies were soon greeting each other like long lost friends. As they strolled through the Climatron, one remarked, "Look at the strange roots hanging down from this tree. The tag on the tree says it is *Ficus benghalensis,* the strangler fig. Why those awful names in Latin, anyway? Strangler fig suits me fine."

During their walk, they noted that virtually all of the living plants bore tags with two Latin names, e.g. *Coffea arabica* for the coffee shrub; *Carica papaya* for the towering papaya. Later the ladies were given a tour of the herbarium of the John S. Lehmann Building, where they had the opportunity to inspect a few of the two and one-half million sheets of dried plants deposited in modern compactors. Each sheet had a label with two Latin names. They were told that were they to visit the herbaria of Kew or Moscow they would find that the same system of using two names is used.

When the first lady in our little drama was trying to recall her friend's name, she resorted to a brief but several-worded description, a habit in which we all indulge when conversing. When they hit upon the actual name of their friend, they experienced a kind of satisfaction in being more precise. They not only pin-pointed her as a specific individual, Mary, but categorized her as a member of the Elbert clan.

This is, in some senses, "the name of the game" in naming the more than one million kinds of plants that cover the land and inhabit the oceans and lakes (the same system applies to animals, too). Each species is given two Latin names, the genus name followed by the species name. *Ficus* tells us that the species is a fig; *benghalensis,* the second, which precise fig it is. Thus all true species of fig belong to the genus *Ficus.* A fig, then, isn't a fig unless it's a *Ficus.* There are more than 800 species in the genus *Ficus.* As for *Coffea,* the several species of coffee come under the umbrella of this one genus.

Dr. John Dwyer and Cinchona pubescens.

Carl Linnaeus, a Swedish physician of the 18th Century and a veritable genius in naming plants,

(Continued on Page 3)

Volume LXVI Number 4
April 1978

Legislative Report: The Garden's Future

Rep. Russell Egan

Sen. John E. Scott

Legislation has been introduced in both the House and Senate of the Missouri legislature to enable the Garden to enter into the Zoo-Museum District. Such legislation, if passed, would provide the Garden with direct tax support for operating expenses. A new Botanical Garden Subdistrict would be created within the existing Zoo-Museum District and would provide a tax rate of four cents per $100 of assessed valuation. Should this enabling legislation pass, a combined majority of both city and county voters would be necessary for passage in an election. With increased operating costs, demands for expansion of programs, and inflation, additional outside support will continue to be necessary for the Garden.

It would be the fall of 1979 before such an election probably could be held.

The legislation was introduced in the House by Representative Russell Egan of the 85th District, in which the Garden falls. A native St. Louisan, he was elected in 1976. He has been a fire fighter and captain, head bookkeeper for a circuit clerk, vice president of the St. Louis Labor Council and member of the Land Clearing Authority.

At the same time, Senator John E. Scott of the Third District, which also includes the Garden, introduced the legislation in the Senate. He is in real estate construction, is an insurance broker and appraiser. Senator Scott was the recipient of The *Globe-Democrat* award for meritorious service during the 77th General Assembly.

Kenneth Rothman, Speaker of the House, who has long had an interest in the Garden and other cultural institutions, cosigned the House legislation.

The Garden operates consistently on a balanced budget. As the years go by, the gap between endowment income, other revenues and actual operating expenses grows with our inflationary economy. In order to keep the budget balanced it would be necessary to cut back programs unless additional outside help were found. In order to secure the future growth and development of the institution, direct tax support may eventually become a necessary component of our income.

We appreciate the support of our representative and senator in this important legislation.

Wildflower Guide

Missouri Wildflowers of the St. Louis Area, by Erna Eisendrath, will be published by the Missouri Botanical Garden early in April. The book, of over four hundred pages with black and white drawings, is written and designed as a field guide. Though targeted for the St. Louis area, the book will be a useful field guide throughout Missouri and neighboring states.

Mrs. Eisendrath, who teaches at Washington University, will be at the Garden to personally autograph her books in the Floral Display House from 2 to 4 p.m., Sunday, April 16. Books are also available by mail. Address orders to the Department of Publications, 2345 Tower Grove Ave., St. Louis, Mo. 63110.

Retail price for the book is $7.95, with a 10 percent discount for Garden members.

TGH Auxiliary Schedules One-Day Trip

The Tower Grove House Auxiliary has scheduled a special one-day trip to New Harmony, Indiana, a National Historic Landmark with world recognition.

A chartered bus with air conditioning and rest room facilities will depart at 8 a.m., Saturday, April 29, returning that evening about 6 p.m. Luncheon has been arranged at the Red Geranium, famous for good food, especially spinach salad and Shaker lemon pie. There will be time to see the restored community, the Labyrinth, the Roofless Church, the fine bookstore and many shops.

Price per person is $28, which includes bus fare, tickets to restored area, luncheon and a $7 tax deductible contribution to the Tower Grove House Auxiliary. Space is limited. Make reservations by calling Mrs. Coultas at 773-9000.

Pitzman Nature Program

Registration forms for the 1978 Pitzman Nature Program will be available by the week of April 24, although names and addresses will be put on the mailing list before this date. Persons interested in registering their children may call the Education Department between 8:30 a.m. and 5:00 p.m. weekdays to request these forms, which contain dates, fees and program contents.

Programs will be held both at the Garden and at the Shaw Arboretum. There will once again be programs for parents and children as well as for children only. Bus transportation to the Arboretum will be available as in the past. This will be the 21st Pitzman Program, which is partially funded by a grant from the Pitzman Charitable Trust.

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Mo 63110. Second class postage paid at St. Louis, Mo $5.00 per year $6.00 foreign

LATIN: THE LANGUAGE OF BOTANY

(Continued from Page 1)

popularized this two-name system for designating species of plants and animals. It brought precision into a science suffering greatly from verbose descriptions that created a taxonomic labyrinth guarded by the Minotaur of tradition. Linnaeus, like Theseus, slew the beast!

We can hear one of the trio of ladies saying, "I still like the common name 'violet'; 'rose' sounds better to me than 'rosa'." If the walls of the Climatron could whisper, they would point out that there are at least 50 common names for the violet, like "pansy," "johnny at the front gate," etc. Thus the violet is buffeted about in a maelstrom of competitive vernacular names. The turbulence is more apparent when one realizes that the African violet is not a member of the violet family (Violaceae) at all! It is as far removed family-wise in the plant kingdom as a Hottentot is geographically from a Hoosier. Consider the fact that the "bog violet" is a *Pinguicula;* dame's violet is a *Hesperis;* dog's tooth violet, an *Erythronium;* the "water violet" is a *Hottonia;* all belong to families other than Violaceae. When the name *Viola* is used, taxonomists (and let's include the many sophisticated amateurs) understand immediately that we are not talking about African violets, bog violets, etc., but about the little purple-flowered harbinger of spring dotting our lawns.

One of our ladies still objects. "I don't care a *Ficus;* I like 'fig!' These taxonomists are always plaguing us with jawbreaking names like *Warszewiczia coccinea* and *Bougainvillea glabra.*" "Come now, Marge," her friend replied. "Your husband is an MD and he uses terms like 'diabetes mellitus' and 'erythroblastosis fetalis' when he's talking to his peers. The same goes for lawyers with their 'corpus delicti' or 'noli contendere.'"

Botanical Latin is as old as the inhabited hills of Rome! The names *Quercus* (oak) and *Ulmus* (elm) were bandied about in the Roman Forum as household words. Most generic names, however, were coined in the 18th and 19th centuries when taxonomists were in a frenzy to add novelties to science. The name *Victoria* assigned to the water-lily in the center pool of the Garden, the one with the gigantic platter-like leaves, commemorates Queen Victoria. Some generic names are not really Latin etymologically, e.g. *Hickoria* (hickory) is an American Indian name that was latinized. Occasionally we find a name which is an anagram, e.g. *Thismia,* an anagram of *Smithia.* Often generic names are fashioned from two Latin words, e.g. the genus *Nasturtium* from nasus (L., nose) and torqueo (L., I twist) referring to the unattractive odor of the flowers. Names like *Asclepias* (milkweed genus) are drawn from mythology, referring here to the Greek god of medicine.

As for the second name, the species name, the taxonomist has a dictionary full of possibilities as usually Latin adjectives are used. Adjectives indicating place are commonly used, e.g. *americana* as applied to *Ulmus americana* (American elm); *rubra* (L. ruber = red) in *Acer rubra* (Red Maple) refers to the redness of the leaves in autumn; *somniferum* (L. somnus = sleep; fero = I carry) in *Papaver somniferum* (opium poppy) refers to the narcotic properties of the plant; *tuberosa* (L., tuberous) in *Solanum tuberosum* (white potato) refers to the edible stem; *sativa (L. sativus* = cultivated) in *Cannabis sativa* (marijuana) has an obvious connotation.

When a species new to science is described, a Latin diagnosis, so the International Rules of Botanical Nomenclature dictate, must be included in the description of the plant. This represents a chore for many systematists considering the recent decline in the teaching of classical languages. The taxonomists usually provide elaborate descriptions of the plant in their native tongue and satisfy the international rules by appending a much abbreviated Latin description. Many of them get their knowledge from a relatively recent text, *Botanical Latin,* by the 20th Century Erasmus of botanical Latin, William T. Stearn of the British Museum. Specialists in systematics must have a working knowledge of Latin. The writer appreciates the presence of a Latin description when he picks up the *Flora of Taiwan* in which the long description of a new species is in Chinese. Thus the universality of botanical Latin breaks down all international boundaries.

Systematics can have its humorous side, too. Linnaeus, with tongue in cheek, named the genus *Sigesbeckia* in honor of Johannes Siegesbeck, a contemporary botanist in Sweden whom he disliked. It happens that the species of the genus would rate high among the disagreeable weeds of the world. The same Linnaeus paid homage to a Swedish botanist of his day, Johannes Browals (later to become Bishop of Abo, Finland) in naming a genus in his honor, *Browallia,* the type species of which is *Browallia americana,* an attractive herb. Later, when the two had a disagreement, Linnaeus described two additional species *Browallia alienata* and *B. demissa.* The Latin adjective *alienata* suggests the parting of the ways and the past participle, *demissa* means "to have been lowered."

Latin is an eternal language that emanated from the Eternal City. The very species named by taxonomists over the centuries enjoy a kind of eternity in the scientific literature of the world. It is strange, in light of this, that living species, the products of an eternity of evolution, and blessed with an eternal name, can be wiped from the face of the earth forever by a stroke of man's wantonness. It seems an insult to nature that man can destroy the species of plants and animals he holds in trust but cannot destroy the names they bear! Sic gloria transit!

— John D. Dwyer

Garden Benefit Raises $17,000

The Japanese Garden Benefit, held Sunday, February 26, at Community Federal Center, the new headquarters building of Community Federal Savings and Loan Association, was a huge success. The event was co-chaired by Jane and Whitney Harris with the help and support of a large committee. The affair was sponsored by Community Federal Savings and Loan Association and the Japan America Society of St. Louis.

The Garden expresses its sincere appreciation to Community Federal for its generous support and hospitality.

Distinguished guests attending the benefit were introduced by Bob Chase, master of ceremonies, and included Mr. Carl L. A. Beckers, Honorable Japanese Consul General from St. Louis; and Honorable Kiyoshi Sumiya, Japanese Consul General for Chicago. Tom K. Smith, Jr., chairman of the Garden's Board of Trustees, spoke briefly and introduced Koichi Kawana, designer of the Japanese Garden, who came from Los Angeles for the event.

Entertainment included the Sakura dancers and music by Japanese members of the Saint Louis Symphony Orchestra, coordinated by Max Rabinovitsj, director of the Saint Louis Conservatory of Music. Etsuko Tazaki, concert pianist and guest soloist with the Saint Louis Symphony Orchestra, was introduced by Mr. Rabinovitsj.

The benefit raised more than $17,000 for the Japanese Garden, to be applied to the stone water basin and the surrounding area in the entrance garden of the Japanese Garden.

The hard-working Harrises and their committee are to be commended for the success of the benefit and evening. We offer our thanks to the many friends who continue to support the Garden by participating in these special events.

Jane Harris, co-chairman, receives floral bouquet of sprays and single orchids during the Japanese Garden Benefit. Also in attendance were, from left, Tom K. Smith, Jr., president of the Garden Board of Trustees; Whitney Harris, Benefit co-chairman; and Dr. Peter H. Raven, Garden director.

New Building Designed With Education in Mind

The planning phases for the education wing of the new "Crystal Palace" have involved St. Louis area teachers, administrators and curriculum specialists in order to make every effort to respond to the needs of St. Louis area schools. This new facility will enable the Garden to expand its programs to meet definite area educational needs. Not only will the six classrooms allow for more Garden programs, but a special teacher resource center will enable teachers to assemble programs to take back to classrooms as well. There will be ample work area for assembling slide programs, film strips, models and text materials.

The programs for children will concentrate on more experimental programs in which the children will be actively involved.

Some classrooms will be devoted specifically for adult programs and will permit an expansion of existing programs. A small adjacent greenhouse will provide support material for classes. In the plans as well are exterior coldframes to teach and demonstrate all-weather gardening.

In addition, there will be offices, conference room, lounge for guides and expanded workshop areas.

The "Crystal Palace" is the major component of the Garden's $6 million development campaign, currently underway.

Japanese Festival to be Held May 14

Mother's Day, May 14, will be Japanese Festival Day at the Garden. Japanese culture will be celebrated in a series of public events, to include music, dance, exhibitions of Samurai swords, horticultural exhibits, art, and traditional Japanese food.

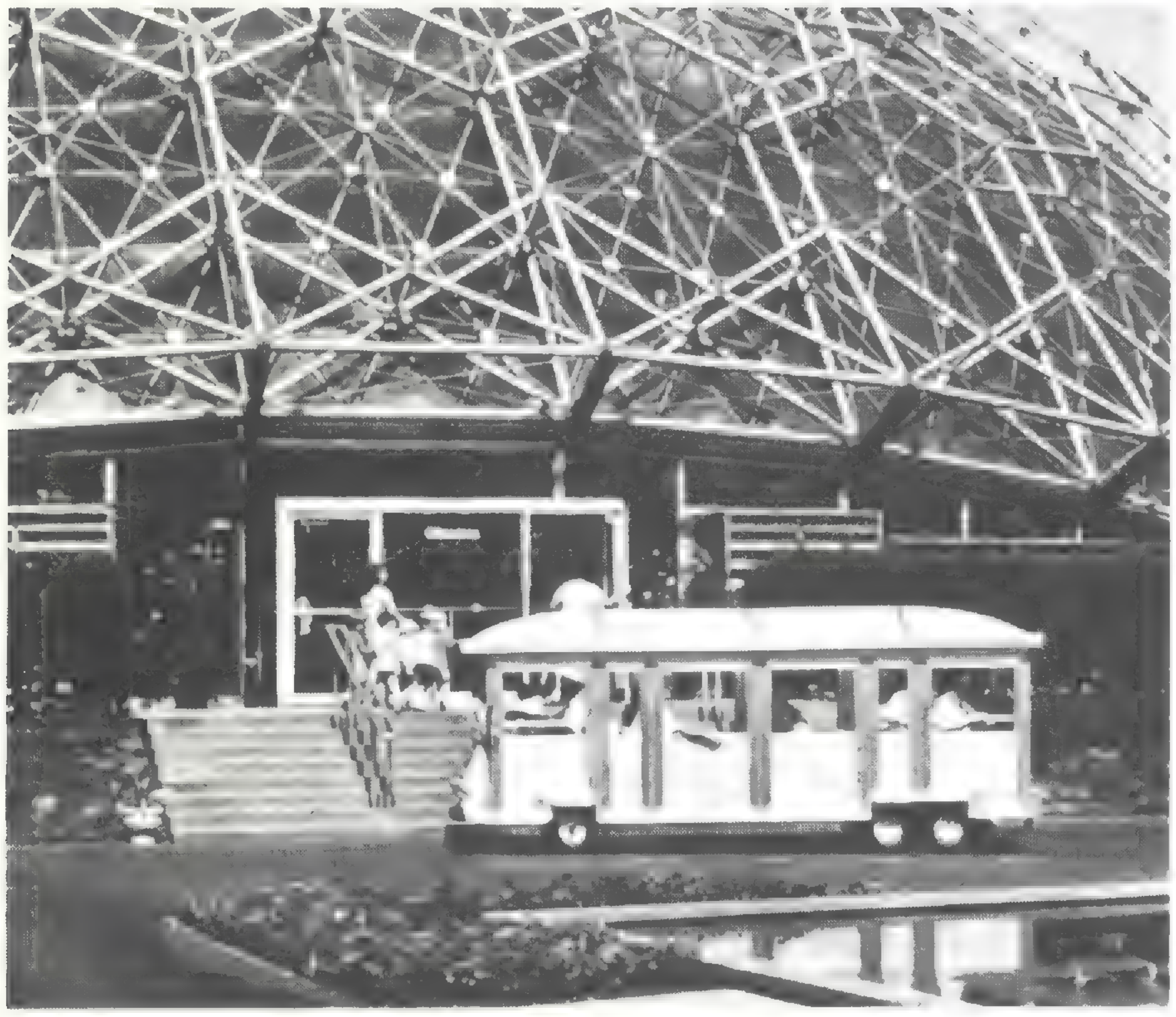
More than 12,000 people attended the Japanese Festival held at the Garden last May in conjunction with the dedication of the new Japanese Garden. This year promises to be as colorful, with the return of the exciting Taiko Drummers from the San Francisco Taiko Dojo, led by Mr. Seiichi Tanaka.

Admission to the Garden for this event will be $1 for Members, children free; $3 for adult non-members, and $1 for non-members' children (6-16).

'Natural' programs

The Missouri natural areas program sponsored by the Arboretum will take place May 6 and 7. This year the educational trip features the St. Francois mountain area with visits to Silver Mines, Taum Sauk, and Sam A. Baker State Park. For reservations and further information, please call Joni Duggins, 772-7600.

Tram System to Roll in April



The Garden's new transportation tram, in action at the Climatron.

A new transportation system will be introduced at the Garden early in April, as the first of its kind in the area. Particularly appropriate to an ecologically conscious institution such as the Garden, the new tram system is exhaust free, quiet since powered by electric motors, and safe because of low speeds, fiberglas bodies, hydraulic brakes and power steering. A total of 14 passengers can travel in the open, canopied vehicles. Enclosures and heat will be provided in colder weather. All three of the vehicles will be equipped with sound systems.

The Wardian Case

Siderasis fuscata is the plant feature of the month in the Plant Shop. A member of the Commelinaceae family and the only species of the genus *Siderasis, S. fuscata* is native to Brazil. Characterized by low, rosetted leaves covered with dense rust colored hairs, purplish-red beneath and streaked with silver, *S. fuscata* presents the appearance of belonging to the Gesneriad family but is instead akin to an extensive line of easily grown, productive houseplants — Rhoeo, Zebrina, Gibasis, Cyanotis, Dichorisandra. Two inch, three petaled, lavender flowers are produced sporadically during the summer months.

Siderasis fuscata's ability to withstand all adverse environmental extremes — low light, heat, drought, low humidity — makes it an ideal plant for interior decoration. When given moist soils (allow to dry between waterings), high light or filtered sun and temperatures above 60 degrees, this plant grows and multiplies quickly. Fertilizer is seldom necessary. Propagation is best done by division.

The Plant Shop: retailing daily from 10 a.m. to 4:30 p.m.

Picnic Day is June 10

A picnic supper will be held at the Garden from 5-8 p.m. on Saturday, June 10. There will be entertainment throughout the Garden, and members will enjoy a unique opportunity to picnic "after hours" throughout the Garden grounds. Tickets are $30 per couple (adults only please). Proceeds will benefit the new transportation system within the Garden.

Flower Sunday Set for April 23

"Flower Sunday," the annual religious service at Christ Church Cathedral established at the bequest of Henry Shaw, has been scheduled this year for Sunday, April 23. Rabbi Alvan D. Rubin of Temple Israel will deliver the sermon, while Dean Michael Allen will perform the service. Members of the attending congregation will receive clippings of olive or bay from the Garden's Mediterranean House.

Since 1890, one Sunday each year has been selected as "Flower Sunday," according to the wishes stated in Mr. Shaw's will that a sermon be given "on the wisdom and goodness of God as shown in the growth of flowers, fruits and other products of the vegetable kingdom."

This year's service will integrate the elements of the Episcopalian service with the Jewish religion.

Sue Flowers Named to Garden Staff

Susan Y. Flowers, a Joplin, Mo., native and a five-year employee of the Missouri Division of Tourism, has been named manager of public relations for the Garden, it was announced by Dr. Peter H. Raven, Garden director.

Ms. Flowers, who attended Missouri Southern State College in Joplin, joined the state tourism division in 1973 as assistant supervisor of the Missouri Tourist Information Center in Joplin. For the past three years, she has developed the Tourist Information Center program in St. Louis and served as the Center's supervisor.

As manager of public relations, Ms. Flowers will be responsible for coordinating and carrying out a variety of Garden public relations and public information programs. Her appointment was effective on Wednesday, February 15, 1978.

With the coming of spring, everyone is eager to begin gardening. But it is important not to rush the season. Many plants have been damaged this past winter due in part to the unusually wet fall, which caused plants to continue growing instead of hardening off, resulting in killing back in many cases. Wait until late April for signs of growth before removing plants. Many damaged plants will send up new shoots from the base and just need to have the dead wood removed when the new shoots appear. Mulches should not be removed until all danger of frost has passed. The advantage of the mulch is that it tends to keep more uniform soil temperatures, aids in the retention of moisture and prevents weeds from growing around plants. Shrubs such as azaleas, rhododendrons, forsythia and others benefit by keeping a constant mulch of four to five inch thickness around the base at all times. As the mulch breaks down, it supplies nutrients to the plants, and therefore, must be reapplied each year. Spring is an ideal time, when pruning and cleaning up, to reapply the mulch before weeds become established.

Pruning Roses

Prune roses between the first and the fifteenth of April, after gradually pulling the mulch from around the plant. Prune the plant according to the variety. Hybrid teas, prune 10"-12" above ground level; floribundas, 6"-8"; grandifloras 12"-15". Following pruning, work in superphosphate, one cup per plant, lightly around the base of the plant, incorporating the mulch which was removed from around the plants into the soil at the same time. A week later feed Epsom salts, one tablespoon per gallon of water, using approximately two to three gallons per plant. Repeat the Epsom salts treatment again in three weeks. This aids in better growth and more disease resistance.

Spring Lawn Care

Lawns should be thoroughly cleaned and grass mowed as low as possible for the first few cuttings. Adjust the mower to cut one and one-half inches above ground level. If feeding was not done in late March, a feeding of a balanced fertilizer such as 6-12-12 should be applied to the lawn at the rate of three to four pounds per 1,000 square feet. Crab grass preemergent killer should be applied from mid to the end of April to control crab grass. Don't use preemergent weed killers in areas where new seed is being planted. Wait at least six weeks after new seed has been planted and allowed to become established before applying weed killers. On well established lawns, apply 2-4-D with Silvex for the control of broad leafed weeds at any time when the temperatures are around 65°-70°. Spray when there is little or no wind, using a sprayer reserved for the weed killer and for no other purpose. Avoid hydrogen fertilizers on the lawn now as it stimulates leaf growth rather than a good root system.

Greenhouse Plants

Plants grown indoors in small greenhouses or under fluorescent lights should be given adequate feedings to keep them in good condition, and kept close to the source of light to avoid leggy growth. Cooler growing plants can be moved outdoors after hardening for 10 days toward the end of the month. Gradually withhold watering somewhat but do not let the plants wilt. Reduce the temperatures, if possible, and place the plants outdoors for short intervals to begin with, gradually increasing the time until they are left out all day in an area where they get good light, but are protected from the wind. Warm growing plants, such as tomatoes and other plants, should not be planted out before mid May. When planted too early, with cool nights, they will not grow or set fruit as rapidly as the plants set out after about May 12.

When selecting plants from the garden centers for growing outdoors, choose varieties which are disease resistant and of hybrid vigor. The new hybrid geraniums grown from seed make ideal plants for all summer color. These are usually grown from seed eight to 10 weeks before planting time and are treated so they are in full bud by early to mid-May and will continue flowering until late frost. They are self-branching, compact growers, seldom reaching a height of more than 12"-15". Disease resistant tomatoes, which are resistant to verticillium and fusarium disease and cracking, should be a must for all growers in this area.

Good plants for shaded areas where little or filtered sun is available are coleus, impatiens and the fibrous begonias, which also do well in the full sun in the St. Louis area. In preparing the soil for planting, work in plenty of superphosphate and organic matter. Then, immediately upon planting, mulch the plants lightly to control soil moisture and prevent weeds.

—Robert J. Dingwall
Chief Horticulturist

NSF Grant Awarded

The National Science Foundation has awarded the Garden a grant to support the project entitled "Floristics of Amazonian Peru," under the direction of Alwyn H. Gentry. This project is a joint endeavor with the Field Museum of Natural History in Chicago. Michael Dillon, who has been a part of the Garden's post-doctoral program, will begin working at the Field Museum this summer and will be working with Dr. Gentry on this continuing project, now in its third year.

James Reed Appointed to State Commission

James Reed, the Garden's director of libraries, has been appointed by Governor Teasdale to the newly-created Missouri Historic Records Advisory Commission (MHRAC). This Commission will work with Secretary of State James C. Kirkpatrick to develop a state plan for the management of historic records and to review grant proposals from libraries, archives, historical societies and other agencies with significant collections of historical documents and records.

Mr. Reed, who has been librarian at the Garden for 5½ years, has developed an archival program as part of the magnificent research library in the John S. Lehmann Building, and presently serves as a member on the Committee on the Archives of Science of the Society of American Archivists. His experience with the Garden's rich collections of manuscript materials and historic records should serve to assist MHRAC in carrying out its mission.

Executive Board Meeting Open to Members in May

Members are welcome to attend the annual luncheon meeting of the Executive Board of the Members on Monday, May 1, in the auditorium of the John S. Lehmann Building. The meeting begins at 10:30 a.m., with a review of the past year's accomplishments and Membership activities. Luncheon will be served at noon, followed by an entertaining lecture on "The Essential Oils" presented by James Crumpler. There will also be a photo exhibit of members' special events on display in the lobby. Tickets for the luncheon/lecture may be purchased for $5.00 per person. Reservations are limited.

For reservations, please send your check along with the coupon provided below to:

Members' Office
Missouri Botanical Garden
2345 Tower Grove Avenue
St. Louis, Mo. 63110

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Executive Board of the Members
Luncheon Meeting

I would like to make reservations for ________ person(s) at $5.00 per person, for the luncheon on May 1, 1978.

Enclosed is my check in the amount of $________
Please send tickets to:

Name________________________________

Address______________________________

A Tea Room for TGH

The Tower Grove House Auxiliary is working to establish a Tea Room in the lower level of Tower Grove House — a much needed food service in the garden area. Needed are donations of tables that seat four (14 in all), and 56 side chairs in good condition. If you have some to offer, please call Mrs. Coultas, 773-9000.

Mark Your Calendar

Through Apr. 16	"Prickly Pears of Desert Lands" — Desert House
Through Apr. 16	Spring Flower Show — Floral Display House
Apr. 15-May 14	"Plants of Classical Lands" — Mediterranean House
Apr. 22-23	Plant Sale — Plant Shop 8 a.m.-6 p.m.
May 3	"Swing Into Spring" — Garden Gate Shop Open House (rescheduled)

Members Spring Lecture Series

Apr. 5	"20th Century English Gardens"
Apr. 12	"Housekeeping with Herbs", "How to Plan and Plant an Herb Garden"
Apr. 19	"Surprises of the Seasons"

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MISSOURI BOTANICAL GARDEN BULLETIN
2345 Tower Grove Avenue
Saint Louis, Missouri 63110

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Missouri Botanical Garden Bulletin

May 14 is Japanese Festival Day

The Garden's third annual Japanese Festival, which last year attracted thousands of visitors for a day long celebration of Japanese art and culture, will be held this year on Mother's Day, Sunday, May 14.

Featured entertainment will include performances by the San Francisco Taiko Dojo Drummers; Sahomi Tachibana and her company from New York City performing both classical and folk dances; and Yoshiko Kendall, who will play a Japanese stringed instrument, the koto.

Demonstrations of origami, calligraphy and pottery making will take place throughout the day. There will be exhibits of bonsai, flower arrangements by the St. Louis Chapter of Ikebana International, and a display of children's art from Suwa, Japan, St. Louis' Sister City. A photography exhibit will pictorially describe the history of Japanese Americans. There will also be a display of antique Samurai swords.

Japanese food will be prepared at the Garden for sampling by festival participants.

The hours of the festival are 10 a.m. to 5 p.m., although the Garden will be open, as usual, from 9 a.m. to 6 p.m. Additional parking will be available at Famous-Barr Southtown, with a shuttle bus operating from 12 to 6 p.m. Fees for admission to the festival are $1.00 for members; members' children, free; non-members, $3.00 for adults, $1.00 for children.

Garden members may purchase Festival tickets in advance, at the Main Gate.

A Japanese performance by the University of Kansas Theater Troupe highlighted events during last year's Japanese Festival.

Volume LXVI Number 5
May 1978

Drive Reaches $4 Million; Major Effort To Come

During eight months of campaigning, more than $4 million has been raised in the Garden's ongoing capital development drive — 67 per cent of the drive's goal and an average of $500,000 per month in contributions.

"We have done well up to this point," said Robert R. Hermann, campaign chairman. "But we still have to pitch in and work hard, keeping on schedule in making solicitation contacts, if we are to reach our $6 million goal."

So far in the drive, Mr. Hermann explained, the Garden's Board of Trustees and staff have "come through" with pledges to the capital fund drive. In addition, 90 per cent of the initial round of solicitation — that directed toward advance gifts and large corporations — has been completed. The next step will be individual solicitations.

"Up to this point," Mr. Hermann added, "our drive has been on schedule as planned — first involving the Board, then the staff, and then 'Advance Gifts,' that portion of the effort which allows special emphasis on large contributions from individuals and major business organizations.

"It must be said, however, that traditionally, most very large gifts are received at the outset of a fund-raising campaign. This is why, despite the fact that we're two-thirds of the way to our goal, we must mount a major individual solicitation effort during the remainder of the year.

"If we are to reach our goal," Mr. Hermann said, "everyone is going to have to participate."

Dr. Croat's Flora To Be Published

Final production is underway on the *Flora of Barro Colorado Island,* written by Dr. Thomas B. Croat, the Garden's Paul A. Schulze Curator of Botany. The work, encompassing 3600 manuscript pages, will be published in a single volume of 1100 pages.

This massive work, drawing upon years of field work, is perhaps "the most comprehensive taxonomic treatment of a tropical flora ever published," according to the Stanford Press spring catalog.

The book is the culmination of a seven year project begun in 1967. More than three years of field work on Barro Colorado Island and more than 6,000 collections make the flora of the island the most well known tropical flora in the world. The island, which lies midway in the Panama Canal Zone, supports a flora of at least 1,369 species of higher plants, a total approaching that of the British Isles. It is one of the world's most important biological reserves and is operated by the Smithsonian Tropical Research Institute.

Garden Club Of America Award To Dr. Peter H. Raven

Dr. Peter H. Raven

The Garden Club of America Achievement Medal, awarded in the fields of research, education and horticultural display, has been presented to Dr. Peter H. Raven, Garden director. The award was given during the Club's annual meeting April 4 in Birmingham, Alabama.

The national award was presented by Mrs. Robert Homans, medal award chairman, who quoted from one letter of recommendation as follows: "I think that by recognizing Dr. Raven's achievements you will inspire young people to follow in his footsteps — to realize the importance of basic research knowledge of botany and that the theoretical scientist could lead the way in the development of a science such as horticulture, which gives so much practical pleasure to so many."

New Volunteer Group

Twenty-three volunteers have completed preliminary training, under the direction of David Binks and Carol Taxman, to prepare them for spring work in the Japanese Garden. Each volunteer has been assigned a specific area in the Japanese Garden to maintain. Each has learned special techniques and is prepared to answer questions that may be posed by Garden visitors.

We are pleased to have this specially trained group of volunteers who began work early in April.

Members Headed "Down Under"

Australia, New Zealand and Tahiti are the major points of interest for a members' tour scheduled for November 3 through November 25, 1978. Reservations are limited. For further information, contact the Members' Office at 772-7600, extension 25.

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Mo 63110 Second class postage paid at St. Louis, Mo $5.00 per year $6.00 foreign

The Volunteer Guides: A Study in Service

Mrs. Donald Metzger, a member of the Garden Guides, conducts greenhouse tour for a visiting group.

Follow one of the 40 volunteer guides at the Garden and you will see someone with an interest in plants and nature and an insatiable desire to learn more. She has a stamina for walking and a joy in sharing what she knows. She can take a group of fourth graders through the "jungle" of the Climatron, or introduce a women's church group to a variety of Holy Land plants in the Mediterranean House. She can show a high school biology class the source of a leading cancer medication of the world's supply of steroids. She can lead a sixth grade group through the Japanese Garden explaining why gardens are important to the Japanese people, or how the plants and rock formations relate to Japanese history, religion, literature and tradition. A group of visiting businessmen might be told why Henry Shaw's country place has meant so much to the people of St. Louis and indeed the world, and the important role that his legacy has played in St. Louis culture, botanical science and horticulture.

The next Guide Training Program will start in September. During eight Thursday meetings, new guides will receive instruction concerning the three major greenhouses (the Climatron, Desert and Mediterranean Houses), the history of the Garden, the comparison of major climatic areas of the world and how plants adapt to grow in each of them. They will also study Japanese Gardens, their underlying philosophy, design and plant materials. Once trained, guides are expected to serve a minimum of one day per week in the Education Department tour program. One additional Tuesday morning per month is devoted to enrichment activities through a Guide meeting.

A recent survey of the current guides indicates that the greatest satisfaction in being a part of the program lies in the ongoing educational opportunities it offers them. It also provides a sense of service to the community while enjoying nature with a group of people of similar interests.

If you would enjoy being a part of this active group and would like additional information, please call the new guide training chairman, Paula Kipnis, at 725-5545; or the guide chairman, Sally Davidson, at 961-0935. If unable to reach either of them, you may leave your name and telephone number with the Education Office at 772-7600, ext. 54, so one of them may contact you.

June 10 Is Garden Picnic Day

Members and their guests are invited to attend a special Garden picnic on June 10. Enjoy a basket supper in one of the Garden's lovely settings and be entertained throughout the grounds. Festivities include performances by the St. Louis Soma Theatre, the Grand Fuzz, the St. Louis Banjo Club, the Brass Quintet of the St. Louis Symphony Youth Orchestra, and Simone, the Bellydancer.

A display entitled "Herbs in Art" will be presented by the St. Louis Herb Society in the Museum Building.

Tickets are $15.00 per person and proceeds will benefit the new transportation system within the Garden. For further information, contact the Members' Office at 772-7600, ext. 25.

Mrs. Ross Named To Garden Board

Mrs. Lucianna Gladney Ross

Mrs. Lucianna Gladney Ross, a prominent St. Louisan long associated with the Garden, has been elected a life member of the Garden's Board of Trustees, it was announced by Tom K. Smith, Jr., board president.

A graduate of Smith College, Mrs. Ross has served for many years as a volunteer guide at the Garden and served with Mrs. Nancy Day as chairman of the program from 1973 to 1975. Her election marks the first time in the Garden's 119-year history that a woman will serve on the Board of Trustees.

In addition to her Garden activities, Mrs. Ross has been involved in the historical restoration project in Kimmswick, Missouri, and serves as a St. Louis Art Museum Commissioner, a consultant for the Landmarks Association and a member of the Board of Trustees of John Burroughs School. In 1977, she was named a Woman of Achievement by The St. Louis *Globe-Democrat.*

Mrs. Ross was elected to fill a board vacancy created by the recent resignation of Sam'l C. Davis, who has been named an honorary trustee.

We welcome Mrs. Ross to our board with pride and pleasure.

TGH Tearoom To Open

May 2, 1978 will mark the opening of a new tearoom in the lower level of Tower Grove House. The Auxiliary will operate the new facility, by reservations only, on Tuesdays and Thursdays. The newly redecorated tearoom will accommodate up to 40 people for a box luncheon of either a salad or sandwich, for $4.50 per person. Reservations may be made by calling Tower Grove House, 773-9000. Serving hours are 11:30 a.m. to 1 p.m.

Northeast Tour

A combination cruise/land tour for members to Nova Scotia and New England is scheduled for September 25 to October 9.

A perfect two week tour, the excursion features the best of New England and the best of Nova Scotia at the peak of fall foliage. Also featured is the new steamer service "Caribe", which sails between Portland, Maine and Yarmouth, Nova Scotia, and the famous "Bluenose" between Yarmouth and Bar Harbor, Maine.

Cost is $1,130 per person. For further information, please call the Members' Office at 772-7600, ext. 25.

Dorothy Young Exhibit Slated For Lehmann Building

An exhibit of oil paintings by Dorothy O. Young (Mrs. Jack J. Sophir) will be held in the John S. Lehmann Building lobby from April 29 through May 27. Mrs. Young, a Fellow of the International Institute of Arts and Letters, will be exhibiting a variety of recent floral paintings, landscapes and still lifes. She is a member of the Society of Independent Artists of St. Louis, and has exhibited paintings in New York, Nebraska, Illinois, and in many shows in the St. Louis region. Her work has received nearly 100 awards and honors throughout her career. The exhibit will be open from 8:30 a.m. to 5:00 p.m., Monday through Friday.

PLANTS OF THE BIBLE
March 11 - April 2

The Library: A Member's Resource

Among the many special collections in the library is one group of 500 publications chosen specifically for the Garden's membership. Included in this horticultural/environmental collection are books on indoor and outdoor gardening, lawn care, flower arranging, landscape design, and introductory botany. These books represent a selection of the classical references on gardening and horticulture as well as current publications.

A member browsing through the shelves can learn how to grow healthier tomatoes, how to identify insect pests on vegetables and the songbirds that help control such pests, how to design bouquets and flower arrangements in both the traditional and Oriental manner, and how to help children gain an appreciation of the natural world. Each month a few selected additional titles are added to this collection in order to help keep our membership current on horticultural happenings.

With very few exceptions, all of these books are available on loan for a two-week period upon presentation of a valid membership card. All members are urged to include a visit to the library when they visit the rest of the Garden. Library hours are 8:30 a.m. to 5 p.m. Monday through Friday.

Brian LeDoux of the Garden staff, who usually spends his time planting, pruning, spraying and watering, has brought his artistic ability to bear on several recent Garden events. Brian, who holds a degree in art from Northeastern Missouri State University and taught art in St. Louis for eight years, executed color drawings to illustrate the recent Orchid Show, the "Plants of the Bible" exhibition and the "Plants of Classical Lands" show.

The Wardian Case

Philodendron *'Painted Lady'*

The May selection in the Wardian Case is one of the famous hybrid philodendrons developed by the late W. McColley — *Philodendron* 'Painted Lady.' Mr. McColley, an Aroid hybridizer of international fame for the past 30 years, developed most of the "Art" philodendrons (those with highly colored foliage) of merit, including 'Prince Dubonnet', 'Burgundy', and 'Emerald King', of which 'Painted Lady' is an outstanding example.

As a member of the Araceae family, exhibiting all the vigor and ease-of-culture of the common philodendron, 'Painted Lady' offers an unusual blend of colors on one plant. The stems, sheaths, leaf petioles, and the lead edges are vivid coral. The leaf blade is a lime green speckled with darker green and yellow. Overall, 'Painted Lady' is a striking addition to any collection.

The word philodendron comes from two Greek terms, *philus* and *dendron,* translating to tree-loving. In their natural habitat throughout the world's tropical belt, they are found growing on or in close association with trees; many as vines. Although they prefer warmer temperatures, well drained soils, constant moisture, and higher humidity levels, philodendrons make incredibly tolerant decorations for the home or office. They are especially suitable for lower light levels, requiring minimal care in all situations.

The Plant Shop: retailing daily from 10 a.m. to 4:30 p.m.

The early flowering spring shrubs, such as azaleas and forsythia, may be pruned in May. Remove some of the older stems at ground level, or head back considerably to control the height. Remove up to one-third of the old stock on older shrubs. This will encourage new shoots to develop. Prune a second time in early June. Following pruning, lightly apply a balanced fertilizer, such as a 5-10-5 or 6-12-12, around the base of the plants or use superphosphate at the rate of three to four pounds per 100 square feet along with cottonseed meal on plants which like an acid type soil.

All winter damage should be pruned back on shrub material now that they have made good growth. Prune to reshape and reform the plants. The addition of iron chelate and Epsom salts at the rate of one tablespoon per gallon of water applied to acid loving plants will help with the green-up. They will harden off better as far as late summer growing conditions are concerned. Holly leaf minor can be prevented by the use of Malathion or Zectran applied to the leaves, starting around the 10th of May and repeating application in about 10 days. Apply carefully to the top as well as the underside of the leaves for good control.

Vegetable Gardens

Vegetable gardens should be well under way at this point. Any time after the 10th of May, the warm season plants, such as tomatoes, cucumbers, squash and others, can be planted out in the garden. Seeds of such varieties can be planted immediately. In selecting these plants, make sure they are disease resistant and suitable for growing in the St. Louis area. Prior to planting, work in plenty of organic matter such as leaf mold or compost along with about five pounds of superphosphate per 100 square feet.

Plants should be mulched immediately to control weeds and moisture. Increase the mulch as plants develop in height so you end up with two or three inches of good mulch over all the areas. Mulching between seed rows can be done, adding more mulch here as the plants develop.

Fertilizing and Insect Control

Spring bulbs that have finished flowering should receive a light feeding of a balanced fertilizer such as 5-10-5. Approximately three to four weeks after flowering, all tops can be cut down to ground level if bulbs are going to be left in the ground throughout the summer months. If bulbs need to be moved, dig up carefully after flowering and move them into nursery rows in shrubbery or some area where they are out of the way, watering in well, and keeping well watered until tops die down naturally. Then the bulbs should be dug, dried and stored in cool dry areas until planting time next fall. Continue planting of glads at three week intervals for good flowering throughout the summer months. Dahlias should be planted immediately and new plants which are purchased set out after the 10th of May. These are excellent plants to grow in semi-shaded areas for late summer and fall color.

Feed roses with a balanced fertilizer, if not done earlier, or feed liquid fertilizer such as 20-20-20 in early May which will encourage flowering. Spray the plants at regular intervals with Benlate alternated with Phaltan for good disease control, applying underneath the leaves and on top immediately following any heavy rain or after plants have made several inches of new growth. Watch for insects and spray with a good insecticide such as Diazinon as soon as insects are first noticed.

Treatment of Dutch elm disease should be undertaken any time in late May. Contact qualified arborists to have this work and any necessary pruning on the elms done to keep them in good condition.

—Robert J. Dingwall
Chief Horticulturist

The Garden Answers

The Garden Answers, by Robert J. Dingwall with an introduction by Peter Raven, Garden director, was published by Cadillac Publishing Co., Inc., in early April. The book contains more than 1600 answers to the most often asked questions about every phase of gardening. The author has been chief horticulturist at the Garden since 1969. In addition, he writes a weekly garden column for the *Globe-Democrat.*

The book is on sale at the Garden Gate Shop for $6.95.

Several Days In May...

The St. Louis Horticultural Society will hold its annual spring show May 20-21. The Floral Display House will be ablaze with roses, iris and a variety of cut spring flowers. House plants will be featured as well.

May also will be rose month, not only in our two rose gardens, but in the Rose Society's show to be held in the Floral Display House May 27 and 28. The show will be open to the public from 2 to 5 p.m. on Saturday and 9 a.m. to 5 p.m. on Sunday. The show will feature roses by color group, by single specimen and by three specimens to a container. Miniatures will be featured as well.

Tropical Biology Meeting

The Committee on Research Priorities in Tropical Biology, of which Dr. Peter H. Raven, Garden director, is chairman, met at the Garden on March 17 and 18. Funded by the National Science Foundation, a two-year study by the committee will focus on certain aspects of research in tropical forest biology. Assessments will be made of the rate of destruction of humid tropical forests and a plan will be outlined for a series of research programs in the tropics.

The committee is composed of 13 scientists from all over the world. This initial meeting will be followed by others in the course of the two-year study.

Mark Your Calendar

May 6-21:	"Subtropical Treasures of Japan"–Climatron
Through May 14:	"Plants of Classical Lands"–Mediterranean House
May 14:	Japanese Festival
May 20-21:	St. Louis Horticultural Society Show–Floral Display House
May 27-28:	Rose Society Show–Floral Display House
May 27-June 18:	"First Fruits of the Holy Land"–Mediterranean House

1978 PITZMAN NATURE PROGRAM

Call the Education Department now for registration forms.

ARBORETUM PROGRAMS

June 26, 28, 30	Sense of Wonder: a time of sharing the natural world for parents and children.
July 10-13 July 17-20	Four Days on the Meramec: natural awareness and river ecology from a canoe.
July 25-29	Natural Awareness: Close contact with nature through personal experiences in the out-of-doors.

GARDEN PROGRAMS

June 19-23 June 26-30 July 17-21	The Green Machine: exploring plant life around the world in gardens and greenhouses.
July 5, 6, 7	One Day Experiences: Three approaches to fun with plants, offered singly or as a package.
July 11-14	Family Plant Explorers: a parent-child program providing activities in growing and using plants.

Herb Society Welcomes Five New Members

Five provisional members were welcomed into active membership at the St. Louis Herb Society's first meeting of 1978. These women worked as provisionals for one year, attending meetings, working in the Herb Garden to see how plants are set out, attending workshops in the greenhouse to learn how the Herb Society meets Garden plans, cooking with herbs and learning the history of herb gardening.

The new members are Mrs. Tobin Carlin, Mrs. Eric Jordan, Mrs. Henry Knock, Mrs. John McCarthy, Mrs. J. Sullentrop and Mrs. Paul Young. There are two new provisional members: Mrs. William A. Wilkinson and Mrs. Albert C. Grimm.

Progress is being made on the Society's "Herbs in Art" project, which will be on display June 10, at the "Picnic at the Garden," a festival planned by the Executive Board of the Members. The Herb Society has three committees working on three handmade projects: a needlepoint rug, a quilt and dried flower crafts. Mrs. John McCarthy, who gave an illustrated lecture at the meeting on her trip to an embroidery school in Copenhagen, Denmark, displayed her Flowers and Herbs in Danish design, a beautiful bell pull and an embroidered herb to be framed.

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INCREASE IN MEMBERSHIPS MARCH 1978

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MISSOURI BOTANICAL GARDEN BULLETIN
2345 Tower Grove Avenue
Saint Louis, Missouri 63110

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James Reed

Missouri
Botanical
Garden
Bulletin

Garden is 'Illustrated' by KMOX-TV

St. Louis Illustrated, KMOX-TV's Emmy award-winning public affairs series, was telecast live from the Garden on the last Saturday in April, focusing for one colorful hour on Garden history, current display attractions and the Garden's work in botanical education and research.

"We have been attempting to focus *St. Louis Illustrated* on St. Louis itself," said Robert Schnorf, producer of the series, "to enhance the civic pride and spirit which St. Louisans already have. The Garden, particularly in springtime, was a 'natural' in more ways than one."

The project, begun in March, was unusual for the Garden and demanded a major Garden commitment in terms of organization and manpower. "We recognized the tremendous opportunity which was presented to us," said Susan Flowers, director of public relations, "in terms of telling the Garden story to a great number of people. And we also recognized our responsibility to put together a final product of quality."

Developed by Schnorf and his *St. Louis Illustrated* production team were plans for an hour-long mix of entertainment, education and outdoor Garden tour. The south end of the Japanese Garden lake would be "home base" for the show; great advantage would be taken of the Garden's springtime visuals, i.e., various colorful outdoor and indoor display elements; entertainment would be provided by the Herb Drury Trio and a dancer from the Simms Academy of Dance in ballet in the Climatron.

Additionally, the Garden's new electric tram system would be used as a mobile camera platform for a moving, tour-interview with Dr. Peter H. Raven, Garden director.

The largest imponderable was the weather.

Saturday, April 29, was typically spring in St. Louis — heavy cloud cover, less-than-balmy temperatures and intermittent rainfall throughout the day. Immediate adjustments had to be made.

Dr. Peter H. Raven, right, Garden director, and Robert Schnorf, producer of KMOX-TV's St. Louis Illustrated, *discuss production points prior to the recent hour-long live telecast from the Mediterranean House.*

First, 'home base' was moved from the outdoor setting by the Japanese Garden lake into the Mediterranean House. Then, taking advantage of rainless periods, the KMOX-TV crew pre-taped Dr. Raven's interview, only to discover later that an equipment failure had rendered most of it useless.

The hour-long program opened with music by the Herb Drury Trio, performing in the botanical set-

(Continued on Page 2)

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June 1978

Camelot Grant Supports Library

The CAMELOT Fund of the Arts and Education Council of Greater St. Louis has provided a grant of $10,000 to assist the Garden's library conservation program. Funds from the grant will be used for the repair and restoration of fragile items from the library's extensive rare book collections, for making Solander boxes for rare book storage and for continuing the library's program of treating all leather book bindings with preservatives in order to arrest deterioration and prolong the useful life of the books.

The Garden's conservation program ranks as one of the most comprehensive preservation efforts of any library in the country. Staff members Morton Deutch and Bill Panos, and volunteers Don Niederlander, Mary Wahl, Maryann Eger, Rose Mary Rudde, and Christy Love run an efficient program that not only performs book restoration and routine preventive treatments on the book collections, but also mats prints and pictures for framing, repairs torn documents and fragile maps, makes pamphlet bindings, manufactures boxes for the storage of prints, removes centuries-old accumulations of dirt and grime from library materials, and meets almost any preservation challenge that comes its way. The generosity of the CAMELOT Fund is helping to assure that the priceless heritage of the Garden's library can be preserved for the benefit and enjoyment of future generations.

Katherine Siegmund, a member of the Garden's new group of Japanese Garden volunteers, offers her brand of tender loving care to the dry garden.

Stolar Exhibit

Mrs. Ruth Stolar, St. Louis artist at work near the Climatron.

An exhibit of oils by St. Louis artist Ruth Stolar, whose work was the subject of the Garden's first art show in 1961, will open in the Floral Display House on Sunday, June 11 and will be on continual display for three weeks.

Mrs. Stolar's display will include more than 30 oil paintings, about half of that number dealing with Garden subjects and the remainder St. Louis area landscapes and still life paintings.

Mrs. Stolar has used the Garden as a living art subject for more than 20 years, choosing the setting because of its great beauty and the variety of subject matter. In 1961, her three-week exhibition in the Floral Display House was the first ever held at the Garden, sponsored by the Members in order to encourage area artists to use the Garden as an artistic resource.

A reception formally opening the exhibit will be held from 3-5 p.m. on Sunday, June 11, in the Floral Display House.

KMOX-TV *(Continued from Page 1)*

ting of the Mediterranean House. Segments which followed included a lengthy interview with Dr. Raven concerning the Garden's current programs and future plans; the Climatron ballet; and color videotape "cuts" of the Japanese Garden, the English Woodland Garden and Tower Grove House.

"Problems, of course, tend to stick in your mind long after the show is over," said Mrs. Flowers. "But, in fact, they were overcome through the incredible competence and quick thinking of the KMOX-TV production team. What should stick in our minds is the interesting and informative 60 minutes of programming which were put together by the Garden and by KMOX."

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Mo 63110. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign

The Garden in Israel

During February and March of this year, Dr. Marshall Crosby of the Garden's botany department visited Israel. The purpose of this visit was severalfold: since Dr. Crosby is collaborating in the Mosses of Israel project, it was important for him to see Israeli mosses growing in the field to gain a better understanding of them. Also, since he has 15 years' experience collecting mosses, he could help his Israeli collaborators perfect the collecting techniques, both from the point of view of where to look for mosses and how best to treat the specimens. Finally, Dr. Crosby was to discuss progress already made on the project and plan for the next year's work.

In October, 1976, the Garden began a joint research project with the Hebrew University, Jerusalem. Its goal is to publish a book describing, discussing, and illustrating the mosses of Israel. The first phase of the project brought Dr. Ilana Herrnstadt from Hebrew University to St. Louis for nine months of study and training, using the Garden's herbarium and library resources as well as moss specimens brought by her from Israel. During this period several collectors were gathering additional specimens in various parts of Israel under the direction of Prof. Clara Heyn, who is also collaborating in the project.

Israel is not thought of as a particularly "mossy" place. Mark Twain described the area as "forbidden desolation" when he visited there. However, mosses are adaptable plants, and about 160 species have been catalogued from Israel. Since the beginning of the Garden project, about 40 which were not previously known from the country have been identified. Thus, there are probably about 200 kinds in the country, most of them also occurring in Europe but with a significant number from more eastern (Asiatic) or southern (African) areas.

A good example of how much is yet to be learned about the mosses of Israel and why the project is being carried out in a cooperative fashion are the collections made by Dr. Crosby and his colleagues at David's Spring, near Ein Gedi, about 25 km (15 miles) southeast of Jerusalem, on the Dead Sea, and therefore about 380 meters (1150 feet) below sea level. The area around this oasis is desert, inhabited by scattered shrubs and *very* few mosses. Near the spring six mosses were collected. They were studied in the herbarium at Hebrew University, and three were identified as previously known from Israel, while one represented a new record for the flora. The remaining two could not be identified using the literature and collections available in Jerusalem, but they clearly have not previously been reported from Israel and apparently do not occur in Europe or nearby Middle Eastern countries. Duplicates will be sent to St. Louis and perhaps to specialists in England and Buffalo, New York, for additional study.

The few kinds of mosses around David's Spring were very abundant and clearly important in the local ecosystem. Some of them help bind the soil together, slowing erosion and providing seedbeds for flowering plants. Others occur in calcium rich waterfalls and contribute to the formation of tufa, a soft, friable calcareous rock.

The U.S.-Israel Binational Science Foundation recently announced in Jerusalem that it will support this worthwhile project for the next three years. The first years' funding will be 183,000 Israeli pounds, or about $11,500. The grant, made to Hebrew University with Drs. Heyn, Herrnstadt and Crosby as co-principal investigators, will provide funds for salaries, field work and technical services in Israel.

When this joint research project is completed, we will have contributed to a better understanding of what kinds of mosses occur in Israel, where they occur and what they do there.

Dr. Gentry Returns From Brasilia

Dr. Al Gentry of the Garden staff has recently returned from Brasilia where he attended the second Latin American Botanical Congress and an executive meeting of the Flora Neotropica Organization.

Dr. Gentry has been elected recently to the executive board of Flora Neotropica and, at the Brasilia meeting, was selected as the board's secretary for the next three years. Selection of a Garden staff member as a director of this international organization is another indication of the worldwide esteem accorded the Garden's expertise in tropical botany.

Two other Garden staff members — Dr. Thomas Croat and Dr. William D'Arcy — are also actively involved in the Flora Neotropica Organization and are members of its Commission.

James Reed Elected Library Network Director

James Reed, the Garden's head librarian, was elected a director-at-large of the new St. Louis Missouri Regional Library Network at the organization's first annual meeting. As a director, Mr. Reed will be working closely with other librarians throughout the metropolitan area to improve present library services and to develop new services and programs for library patrons in the city of St. Louis and in the Missouri counties of Franklin, Gasconade, Jefferson, St. Charles, St. Louis and Warren. Among the many projects the new Regional Network may consider are such activities as improving delivery services among area libraries, developing an on-line bibliographic data base of library holdings, coordinating acquisitions programs among libraries and making access to collections easier for library patrons.

The Wardian Case

Platycerium grande

There are about seventeen species of large, spreading or droopy epiphytic (air loving) ferns of the tropics and subtropics that are identified by the name Staghorn Fern. The selection of the month for the Wardian Case is a very special member of this group — *Platycerium grande.*

Collected between 1836 and 1840 on the island of Luzon in the Philippines by H. Cummings, *P. grande* has always been a collector's oddity. Prized for its unusually ornate sterile frond formations unlike those of other platyceriums, the fern has commanded much attention for the limited time it has been commercially available. The fertile fronds resemble stag antlers; the sterile fronds act as anchors, securing the plant to whatever it is growing on. Its epiphytic characteristics make it a perfect subject for hanging baskets, plaque or log culture.

Ideally, *P. grande* prefers high humidity and high light levels. It will perform quite well in any well lighted room that has 40 to 50 per cent humidity. Water should be applied to yield an evenly moist condition at all times.

The Plant Shop, retailing daily from 10 a.m. to 4:30 p.m., has a fine selection of small plants in four-inch pots ready for mounting or transplanting.

Telephone Pioneers Rake and Dig for a Day

More than 90 Telephone Pioneers contributed more than six hours of their time to numerous outdoor tasks throughout the Garden on Saturday, April 22. Many entire families were represented and could be seen raking leaves in the rose garden, digging up spent bulbs in front of the John S. Lehmann Building, digging up sod.

The tireless efforts of these volunteers are most appreciated by all.

Volume One of New Series Published by Garden

How many species of vascular plants are there in North America? An approximate answer to this question and others related to the flora North America are contained in the first volume of a new series of publications by the Garden — Monographs in Systematic Botany.

This 200-page volume is entitled "A Provisional Checklist of Species for Flora North America (revised)" and was edited by S. G. Shetler and L. E. Skog of the Smithsonian Institution. The societal and scientific need for a general information system concerning the native and naturalized plants of North America is recognized by the botanical community, and this publication is a means to that end. The provisional list will be scrutinized and revised by botanists with the goal of producing an authoritative inventory of the flora North America.

How many species of vascular plants? According to Monographs in Systematic Botany: 16,274.

Mrs. Erna Eisendrath, long-time Garden supporter and teacher at Washington University, autographs her recently-published book, Missouri Wildflowers of the St. Louis Area, *during an author's session in the Floral Display House.*

SEB MEETING JUNE 11-14

The annual meeting of the Society for Economic Botany will be held at the Garden June 11-14, featuring a symposium entitled "The Role of the Botanical Garden in the Exploration for Useful Plants," and a lecture by the Distinguished Economic Botanist for 1978. There will also be sessions for contributed papers, and a number of field trips and social activities. The meeting is being coordinated by Dr. Thomas Croat of the Garden staff.

Gardening in St. Louis

This is a busy month in the garden. Plan to work in the garden early in the morning or early in the evening when temperatures are cooler. It is important when watering to water plants heavily, equal to about two inches of rain so that watering only every 10 to 14 days is sufficient. This is much preferred to a light daily watering. When spraying plants for insect or disease control, avoid spraying when temperatures are above 85°. Spraying in the early morning is ideal; however, spraying also can be done in early evening if the plants dry off before night sets in. In spraying or dusting, make sure that the underside of the leaves are covered first and then cover the tops of the leaves. For spider mites on roses, one should use Kelthane alternated with Omite for best control, applying the spray once every three days for at least four applications.

Mulching

All plants should have additional mulch applied over what was put on a year ago. Clean areas thoroughly of weeds before applying the mulch. Azaleas, rhododendrons, hollies and other acid-loving plants should not be cultivated around the base because they are surface rooting. Cover with a good mulch to control weeds and moisture. A feeding of a balanced fertilizer such as a 5-10-5 or cottonseed meal with superphosphate is beneficial. If the leaves of azaleas or rhododendrons are a light, yellow green in color, the addition of iron chelate and Epsom salts at the rate of one tablespoon per gallon of water applied at the rate of one gallon for every six inches of plant height will help to correct this situation and will also insure that plants harden off next fall.

Lightly cultivate around the base of roses and feed with liquid fertilizer to increase their vigor. Some pruning of weak growth may be necessary to insure sturdier canes and better flowering throughout the balance of the summer. Spray for mildew and black spot at regular intervals, especially after any heavy rain. Phaltan alternated with Acti-dione is ideal for this control.

Dividing Mums

Chrysanthemums can still be divided, setting out single shoots, pinching the top back to insure bushiness, applying regular feedings of fertilizer at two-week intervals. Keeping the plants moderately moist will insure good fall bloom. Gladiolus can be planted at two-week intervals up to and including early July. Annuals may still be planted in various areas of the garden. Seedlings sown direct can be moved on a cloudy day; water them in well using a liquid fertilizer at half the recommended strength to offset the shock in transplanting. Protect them from full sun the first couple of days. Pinch annuals to encourage branching out and compactness. Oriental poppies and bleeding hearts can be transplanted now. Dig up the plants with as much root intact as possible, cut roots into two to three inch sections and plant covering about an inch deep. New plants will soon form, and flower the following spring.

Crabgrass Control

A second application of pre-emergent for crabgrass should be applied by mid June to give complete control during the summer months. Crabgrass that was not controlled earlier can be sprayed with a post-emergent recommended for crabgrass control. Apply when there is little or no wind, being careful not to get it on any other plants. Use a separate sprayer for weed control, because it is almost impossible to wash this out and use it for other purposes without killing them as well.

Aluminum foil placed underneath squash and cucumber vines will reflect light underneath the leaves and will help to control squash bugs, which prefer dark areas. Little or no spraying is required when the aluminum foil is used. Small rocks placed on the edges will keep it in place.

The tops of tulips, daffodils and other spring flowering bulbs can now be removed to within one-half inch of ground level, because the plants will have made enough nourishment for flowering next year. Lawn areas where bulbs have been planted, once the tops are cut down, can be fertilized to help stimulate greener grass.

Vegetables

Many of the warm crop vegetable plants, such as beans, cucumbers, squash and tomatoes, can still be planted in the garden. Prepare ground well and either plant small plants or sow seed direct.

Inspect indoor houseplants to make sure they are free of spider and other insects. Apply liquid fertilizer periodically to keep them in good condition. Occasional pinching to control the growth and shape of the plants will be necessary. Avoid overwatering at this time of year and keep plants out of the direct drafts of air conditioners. Those who have room can move plants outdoors, if this has not already been done. Check areas where they are placed to be sure they are free of slugs and insects. These plants should be fed at regular intervals and pinched to encourage good growth and good shape.

— Robert J. Dingwall
Chief Horticulturist

Fruit Garden Planted

A new demonstration fruit garden has been planted in the northwest area of the Garden featuring dwarf fruit trees and in the future other small fruits as well. Some of these trees will be espaliered.

The trees are a gift of Stark Brothers Nurseries and Orchard Co. of Louisiana, Missouri. The Garden is grateful for the gift because this new feature will be of great interest to Garden visitors. The orchard will be supplemented by a complete vegetable garden.

Members Invited 'Down Under'

The Garden will sponsor a Members' trip to New Zealand, Australia, and Tahiti — that unbelieveable land "down under" — from Nov. 3-25. The tour will be escorted by Dr. Marshall Crosby, director of research at the Garden. Local horticultural groups will host the members at private gardens and homes not ordinarily on public view.

Highlights of the tour include a Milford Sound cruise and visits to an Australian sheep station and Rotorua's thermal wonderland.

Deluxe hotel accommodations will be featured. For further information, please call Montclair Travel at 314/367-3000, or the Garden, 314/772-7600, ext. 25.

Magnet School Red Ribbon

Fourth grade No. 209 at the Stix Magnet School has won a red ribbon in the Monsanto Post-Dispatch Science Fair for their class project: "Under Which Conditions do Plants Grow Best?"

Mrs. Dolores Pepple and her students designed this experiment, with materials and assistance from the Garden's Education Department, in connection with the Magnet School Project. In the classroom, the students designed the experiment to include 12 different conditions under which the peperomia might grow. Some of the conditions tried were upside down, in darkness, suspended in mid-air, with lots of water and near the heater. As a result of their experimentation, the students decided that the peperomia and plants in general do best in fresh air and sunlight with soil and water.

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MISSOURI BOTANICAL GARDEN BULLETIN
2345 Tower Grove Avenue
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Missouri Botanical Garden Bulletin

Christmas in July? See Page 4.

Let The Flowers Speak

Plants: The Garden's Silent Teachers

One of the principal differences between a botanical garden and a floral display, as witnessed, for example, in a public park, is that a botanical garden boasts of an educational program. At the Missouri Botanical Garden, many educational projects are in operation, including those maintained by the Education Department and those related to the herbarium, the library, the Arboretum and the answer man system.

Ofttimes forgotten, however, is another educational aspect of the Garden: the plants themselves.

Though silent, majestic and anchored to the ground, they carry messages and have histories diverse and awesome. The poet William Cullen Bryant suggested how man is affected by living things when he said: "To him who in the love of nature holds communion with her visible saints, she speaks a various language."

It is not the place here to explore the fact that man and his plants are protoplasmic, both formed of

(Continued on Page 2)

The path to the Linnaean House, an educational adventure with the plants themselves as silent teachers of botany and history.

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July 1978

LET THE FLOWERS SPEAK . . . *(Continued from Page 1)*

the same elemental biological stuff. Here we want to sidestep such philosophy and take a casual peek at the treasurehouse of information concerning the plants growing on the grounds of Henry Shaw's dream: the Missouri Botanical Garden.

Let's imagine entering the main gate of the Garden and veering to the right toward the Rose Garden and the Linnaean House. The first plant encountered is the ginkgo tree, bizarre of shape, its leaves verdant in summer and golden in fall, with fan-shaped leaves resembling those of the maidenhair fern. Thus the ginkgo carries the common name "Maidenhair Tree". This stately giant is a living fossil, the only survivor of ginkgo dropouts in geological time's inexorable winnowing process. It no longer lives in the natural protective forests of the Orient. The tender loving care received as a revered species is the secret of its perpetuation.

Above the ginkgo, a shingle oak towers toward the sky. Its wood was and is used in the manufacture of shingles. Beyond, beside the path, is a hawthorn tree, the official flowering plant of the State of Missouri. Glancing at the ground we see the prostrate groundcover plant, the lesser periwinkle, its pink flowers like a neon light shimmering over a sea of dark leaves. Who would ever imagine that it and its relative, the Madagascar periwinkle, have caused a sensation in medical laboratories seeking to unlock the secrets of cancer control!

Faced with the vista of the Garden's principal rose display, many thoughts enter our minds: how the early Christians saw the rose as a symbol of Roman debauchery because the pagans floated rose petals atop their wine during their bacchanalia. This idea has fortunately melted away, with common sense dictating that beauty is beautiful and only the abuse is intolerable. Many oldsters will recall the seasonal "rose-fever" caused by the air-borne pollen from the old-fashioned open faced roses, plaguing the respiratory tract. The development of many varieties with petals tightly closed and blocking such migration, has brought much relief.

Corners frequently hide the most interesting things, including plants. Facing the Linnaean House and turning our eyes to the right where stone wall meets stone wall at the northeast corner, we see a shrub almost reaching the summit of the wall. Approaching it, we come face to face with the vicious spines arming the twigs. The tree bears fruits unmistakably related to the orange. The question is: how is this relative of the orange able to survive the icicles of the St. Louis winter? The answer is that plants, like people, learn to adapt to a strange climate.

To the right of the tree, in summer and fall, is an annual herb, the castor bean, here remote from the warmer climes it calls home, yet capable of flowering and fruiting in the local heat. The castor bean is a saga in itself. Some of us recall the horror of having to swallow castor oil as a cathartic. The seed contains one of the most powerful poisons in nature: ricin, which fortunately is removed from the cathartic. The same castor oil was used by the ancient Egyptians in painting their mummy cases. Quality items have a way of surviving: the same oil is used in the space age as a topflight lubricant for delicate instruments.

As we walk along the path adjacent to the wall, a paeony in full flower meets the eye. Among the ancient Greeks, the paeony was sacred to the supreme deity, Apollo. By a strange twist in ideas, the word paean or hymn of praise arises from this association of the flower with the god.

Entering the Linnaean House, especially in the late winter, the visitor is immediately attracted to the camellia shrub. These are bedecked with white and pink blossoms against a backdrop of green lustrous leaves. When frost coats the greenhouse glass these bring welcome relief to the drabness of winter. The genus name, Camellia, commemorates a 17th century foreign missionary, Georg Kamel, reminding us of how many men of the cloth have been associated with the history of botany. Gracing the entrance to the Linnaean House is a statue of Carolus Linnaeus, the greatest of all plant classifiers. This Swedish physician of the 18th Century reminds us also of how many medical men have contributed to the science of botany.

In the formal garden outside the Linnaean House the gas plant with its pink spire of flowers rises to waist height. It is also called the "burning bush," a name suggestive of the alchemy of plants. When the weather is dry and hot, it yields an inflammable oil that bursts into flame in the presence of a lighted match. "The flame is not brilliant," Kenneth Peck points out, "but resembles the last flicker of flames arising from the brandy in a Cherry Jubilee."

Not far away is the deadly aconite plant, a close relative of the delphinium, an ancient habitue of the alchemist's den. Its hooded blue flowers suggest the cowls worn by medieval monks. The invisible root is probably the most toxic part of a flowering plant known to man, a root implicated in stories of witches' potions and vampire bats in the shadowy Carpathian Mountains.

In the center of the formal garden is the *Baptisia* plant, whose white butterfly-shaped blossoms signal that it is a legume. Bumblebees, using the lower petals as a landing platform, forage within the flowers for the sweet juices, at the same time picking up loads of pollen destined for their hives, or discharging pollen for the host flowers. Here in dramatic fashion is demonstrated the interdependence in nature of plants and animals. As we glance closely at the stem of the

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The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Mo. 63110. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign.

The Wardian Case

Dracaena deremensis

Dracaena deremensis 'Warneckei' will grow to 15 feet in height. It is a variety which will tolerate low light conditions and some neglect. This variety has eight to 12 inch stiff, swordlike gray-green leaves with white stripes.

The Plant Shop has a large selection of these plants in different sizes. The Shop retails daily from 10 a.m. to 4:30 p.m., seven days a week.

LET THE FLOWERS SPEAK ... *(Continued from Page 2)*

Baptisia plant we see traces of natural blackness. This is indigo dye, once so valuable in the commerce of the world.

As we pass through the stone arch, moving in the direction of the Floral Display House, the American holly, its glossy deep green and spiny-margined leaves glistening in the sun, serves as a reminder that nature has placed rigid limitations sex-wise on certain plants. For these are male trees, unable to produce the glistening red berries so highly prized in Christmas wreaths! Across the mall and guarding the entrance to the Display House are the female counterparts, in season bedecked with the familiar fruits. And yet these reminders of the Christmas season cannot form unless the invisible pollen from the male flowers drifts across.

Our little journey has been short, perhaps no more than 500 yards from the main gate, and yet so much to see! How many more exciting messages from nature's cornucopia lie in the Mediterranean House, the Climatron, the Desert House and the vast expanse of the Missouri Botanical Garden.

— John D. Dwyer
Research Associate

Jean Deken Named Library Delegate

Governor Joseph Teasdale recently announced the appointment of Jean Marie Deken as an official delegate to the Governor's Conference on Library and Information Services, to be held November 30 and December 1, 1978. Miss Deken, who serves as Archivist and Cataloging Assistant in the Garden's Library, will serve with other delegates at the Governor's Conference to address the many complex issues facing the nation's libraries: the role of computer technology in libraries, the need for improved funding of library programs, and the demands upon libraries to collect non-traditional types of materials and to offer new services to their clientele.

From those delegates attending the Governor's Conference, a group will be selected to attend the White House Conference on Library and Information Services in 1979.

Shaw Birthday Party July 24

The herb garden adjacent to Tower Grove House will be the site of a birthday celebration for the Garden's founder on Monday, July 24, from noon to 2 p.m. A large cake decorated with "Happy Birthday, July 24, 1800, Henry Shaw" will be cut at 12:30 p.m. Lemonade and cookies will be served and huge balloons will decorate the area.

Cactus Society Show

The golden barrel cactus, one of hundreds of varieties which will be on display for the Henry Shaw Cactus Society's annual show, scheduled for August 26 through September 4 in the Floral Display House.

Open Space Study Completed by Garden

The Ecological Services Department has completed a major study of the plants in two open space areas within the City of St. Louis. Under a $30,000 contract from the St. Louis Community Development Agency, a survey was made of the plants in two sections of Forest Park and along four miles of open space bordering the Mississippi River in north St. Louis.

The purposes of this project were to inventory the plants of these areas so that decisions on their future uses would be made with the most complete information possible. In Forest Park, every tree in the 200-acre strip bordering Kingshighway was identified and located on a map. Ninety different species of trees and shrubs were found in this section of Forest Park and more than 3,800 individual trees were cataloged. Part of the study, which was conducted by Rick Daley, David Spellman, and Helen Parker, included an analysis of how fast some of the trees were growing. Some white pines, for example, were found to grow less than 1/64 inch a year while others were growing as much as 1/3 inch annually. In this case, the difference is apparently due to competition from neighboring trees.

The southwestern corner of Forest Park is called the John F. Kennedy Memorial Forest and is one of the few native forest tracts left in the city. The study showed that this forest has been cut or burned sometime during the last century, although it was apparently not heavily used during the 1904 World's Fair. Seventy species of trees and shrubs and more than 80 herbs were found in the Kennedy Forest. This diversity explains the wide variety of resident birds present and the reason that many migrating birds, especially warblers, stop in this forest.

The northern St. Louis riverfront contained an almost identical number of plant species as the Kennedy Forest. Here, however, only 49 tree species were found, but there were more kinds of herbaceous plants. The Community Development Agency is planning a new park along the riverfront which would feature a bike path. St. Louisans have little opportunity to enjoy the banks of the Mississippi River because most of the land is used by industry. A park on the north St. Louis riverfront would provide a much needed recreation site and would give St. Louisans an opportunity to enjoy the diversity of plants and animals which live along the banks of the Mississippi.

Open spaces are a critical part of the urban quality of life. This explains the appeal of the Garden to more than a third of a million people each year and underscores the importance of wise decisions about all open areas. We can capitalize on these opportunities only if we study and understand the resources we have. The Garden's report is a major step toward the development of inventories of all of St. Louis' open spaces.

Christmas In July

Rushing the season by half a year, the Garden Gate Shop in July will feature a wide variety of Christmas ornaments, decorations and gift items for the truly determined pre-holiday shopper. On Saturday, July 15, a special Sidewalk Sale with bargains galore — all items marked at half-price — will be held at the Shop.

Also featured for a limited time will be special notepaper depicting the Linnaean House, offered at a cost of $1.25 per package.

Remember to include a visit to the Garden Gate Shop on your July calendar.

A Living Tribute

In recent years, the Garden has initiated a program for expanding its living collections of trees and shrubs. These young specimens are obtained either as plants from specialist nurseries or from other botanical gardens. But in increasing numbers the Garden is producing specimens from seed and vegetative propagating material in its own two-acre hardwood nursery, located at the Shaw Arboretum.

Such specimens — when finally incorporated into features like the Japanese Garden, English Woodland Garden or as individuals in other areas of the grounds — are living tributes to a particular event or the memory of an individual. Each of the new plantings is recorded permanently on a record card, containing pertinent information related to the specific species, by the Garden's Plant Record Department. This information includes details relating to any donation. It is not possible to place plaques at the individual trees and shrubs, but such contributions will be recorded in the *Bulletin*.

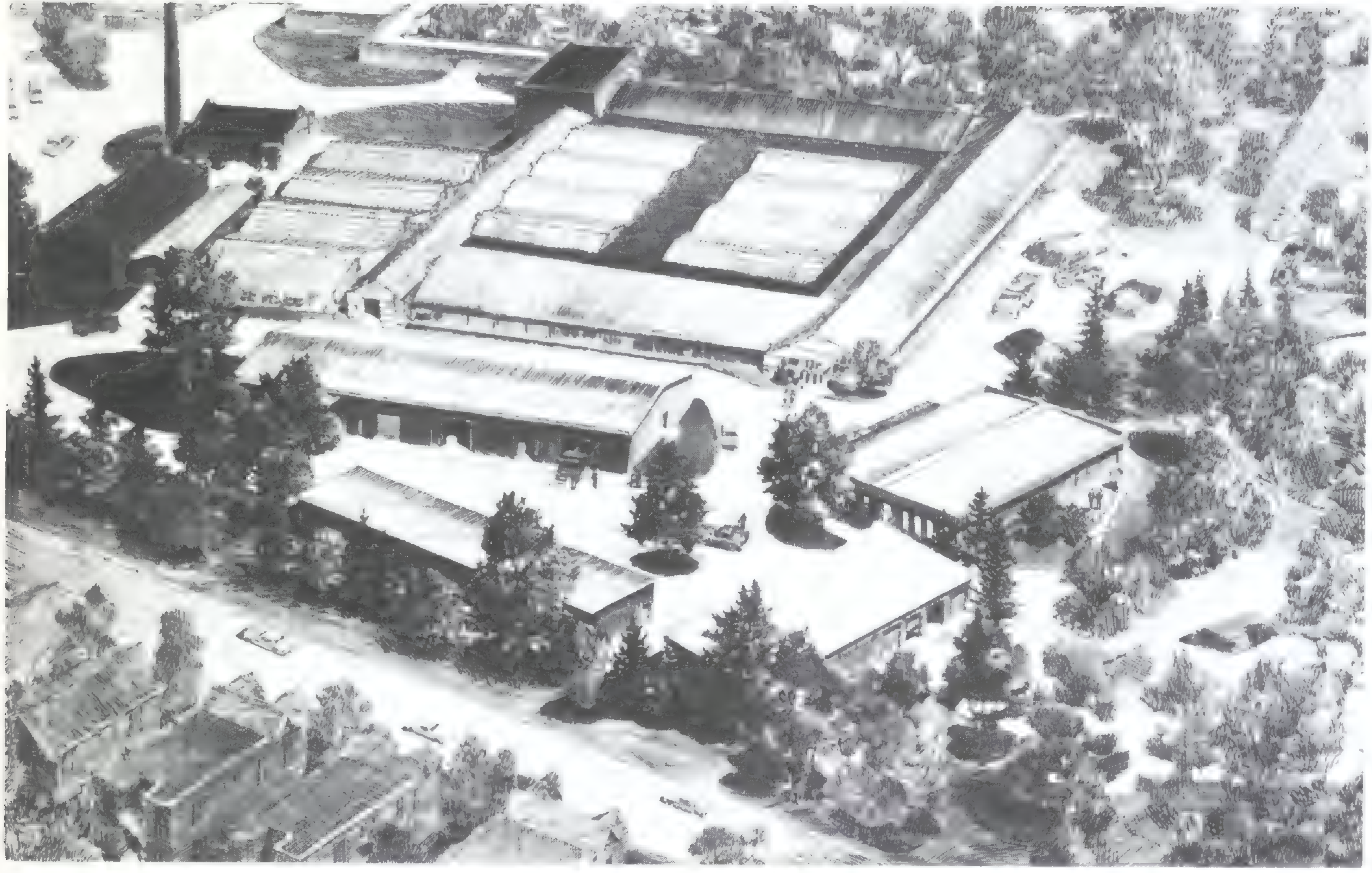
Members interested in a living tribute should contact John Elsley, 772-7600.

Forest Service Meeting Set

The Garden will host a public meeting, sponsored by the U.S. Forest Service, to discuss several alternative proposals for wilderness management in Missouri and other states in the Eastern Region. The meeting will be held from 7 to 9 p.m. on July 17, in the John S. Lehmann Building auditorium.

The regional forest supervisor will be on hand to answer questions concerning the wilderness management system. Displays will show the areas now under or being considered for program management.

Bids Are Out For Construction Of New Maintenance Complex



An artist's rendering of the Garden's new maintenance complex, designed by Ross & Baruzzini, Inc., of St. Louis, and an element of the Garden Master Plan developed by Environmental Planning and Design, Pittsburgh.

Bids are out for construction of the Garden's new north end maintenance complex, a group of buildings representing the first phase in the major renovation and construction which will culminate in the building of the Education/Visitor Orientation Center. Ground will be broken soon for the new maintenance buildings.

The complex will replace the antiquated structures which are presently being used for these purposes.

Books in Review...

Lawns: The Year-Round Lawn Care Handbook for all climates and conditions; Melvin J. Robey, David McKay Company, Inc., $9.95, 216 pages.

This recent publication by the superintendent of athletic facilities at Purdue University approaches the subject of lawn culture in a most readable and at the same time technically informative manner. Approximately two thirds of the book is devoted to 399 questions and easy-to-understand answers relating to such specifics as weed control, fertilizing, seeding or any other lawn-care operation, answers being directly applicable for the home owner. A basic month-by-month guide to lawn care seems especially useful, and if followed, will enable the reader to "become the lawn-care expert in your neighborhood", according to the author.

Grass does, of course, fall within the well worn horticultural phrase "ground cover" and the reader is introduced to an extensive listing of possible alternatives to grass combined with specific cultural advice applicable to many of the subjects. A comprehensive glossary terminates the text. Included within the text are a series of easily interpreted and pertinent line drawings and tables.

Landscape You Can Eat; Allan A. Swenson (David McKay Company, Inc.) $10.95 cloth, $5.95 paperback.

Nationally syndicated newspaper garden columnist, Allan A. Swenson, is a prolific author of many popular garden books in addition to regular appearances on television as America's Green Thumb Gardener. The cultivation of fruit trees and bushes on a small garden scale is a subject that is today gathering momentum as gardeners are discovering, often for the first time, the various advantages of producing one's own fruits. The production of fruits for fresh consumption is matched by their usefulness either canned or frozen throughout the year.

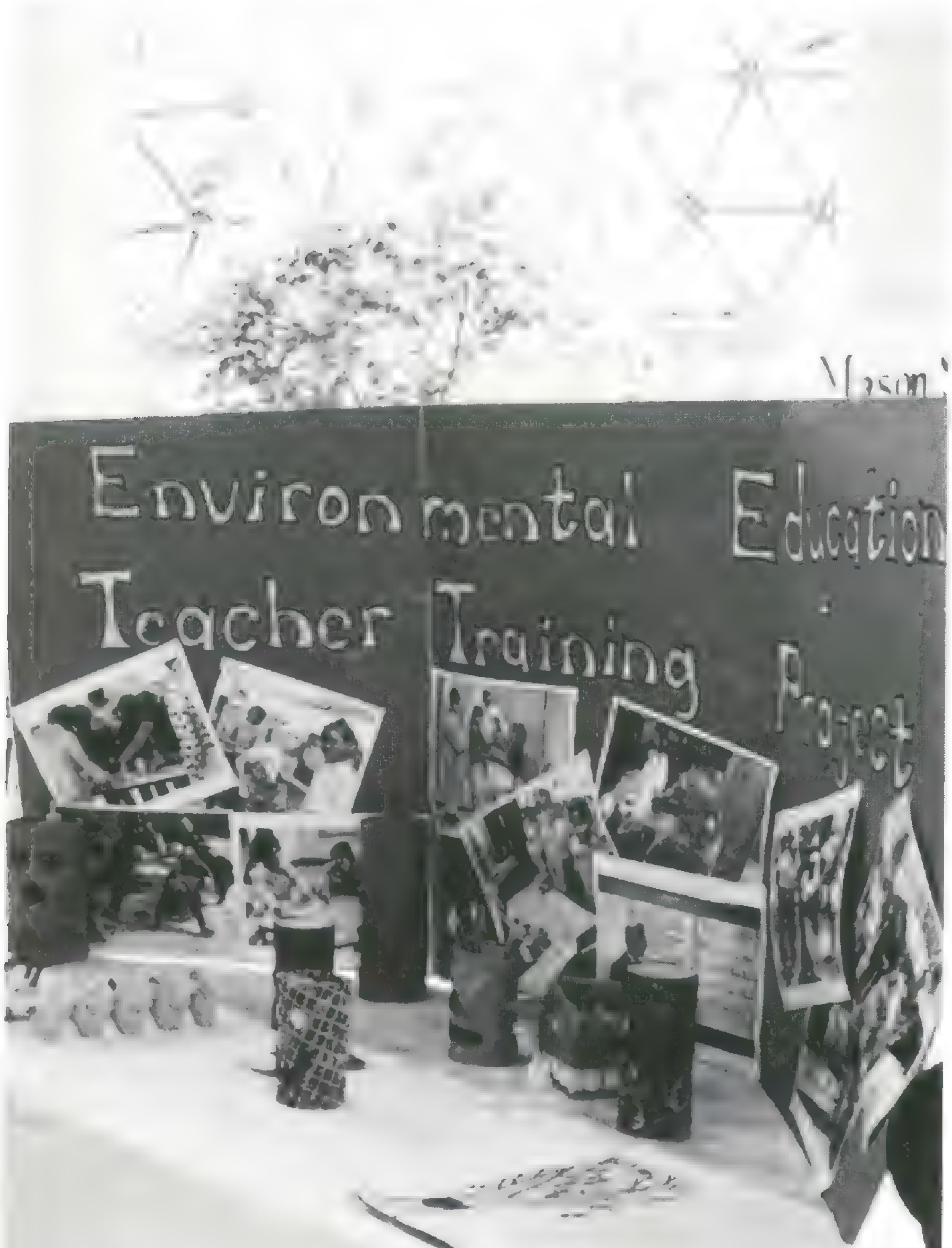
Sections are devoted to planning and basic cultivations in addition to specifics related to individual fruits and nuts. Up-to-date information is included on pest and disease control and basic pruning techniques. A final chapter provides an assortment of handy reference data, including reputable suppliers of plants, and addresses of institutions where local information on fruit growing can be obtained.

— John E. Elsley

People and Events

TROPICAL FOODS

Students and teachers from Stix Investigative Learning Center and Mount Carmel School have participated in a variety of exciting projects at the Garden. Visitors, at left, sample the fare during a recent "Tropical Feast" project.

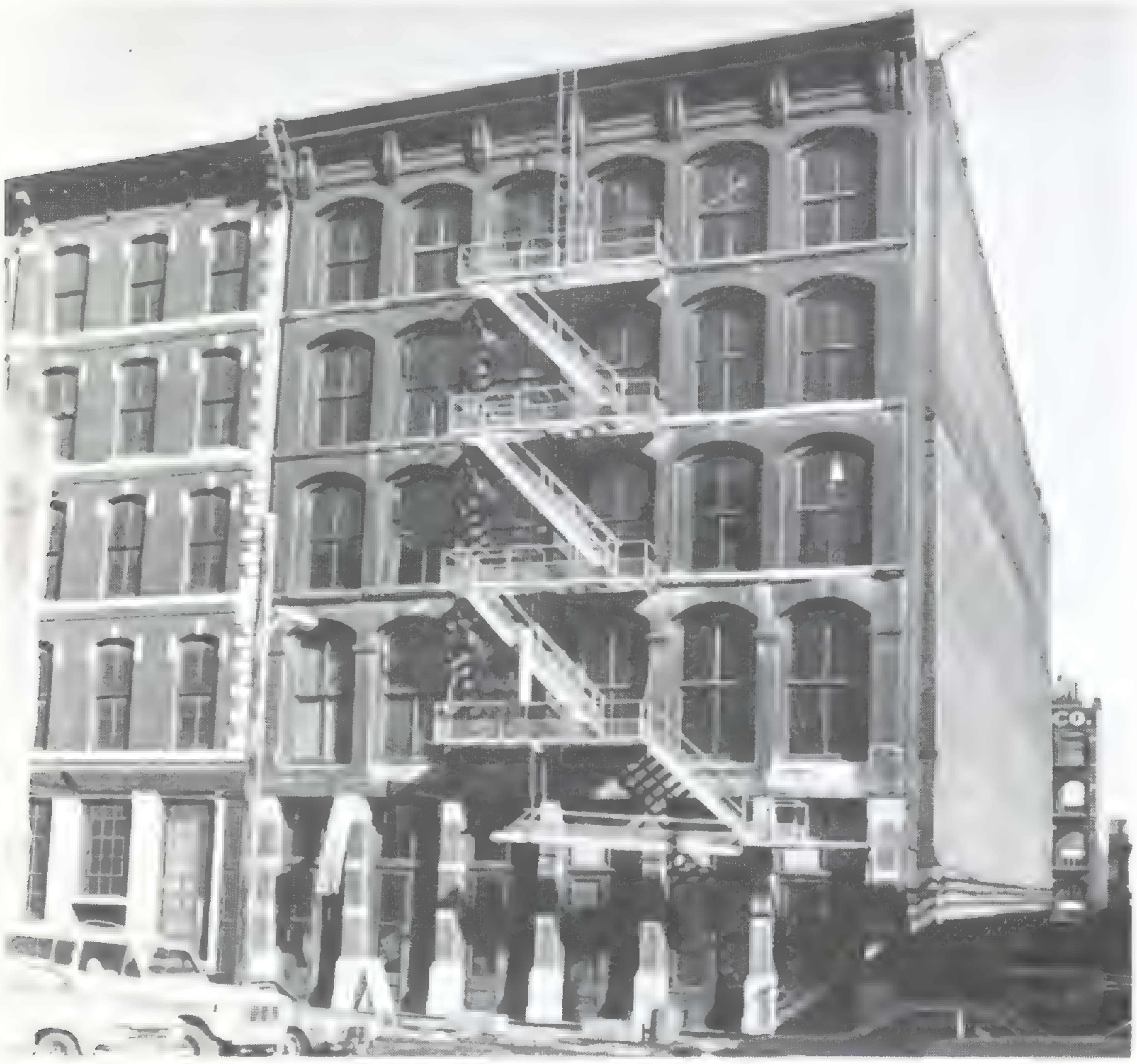


Stix and Mt. Carmel students have also participated in projects to study and report on environmental and ecological matters, above.

Albert Enti, left, a businessman from Accra, Ghana, and his son, Emmanuel Enti, second from left, meet with Garden staff members and others during a St. Louis visit in connection with the city's selection of Accra as a "sister city" in Africa. Clockwise from the top are Dr. Peter Goldblatt of the Garden staff; Alphonso Jackson, St. Louis director of public safety; and Dr. Marshall Crosby and Susan Y. Flowers of the Garden staff.

Dr. Peter H. Raven, Garden director, accepts framed copy of the current Southwestern Bell Telephone Co. white pages directory from R. A. Barron, vice president and general manager for Bell in St. Louis. The cover depicts a Japanese Garden scene.

Henry Shaw's 'Other' House



Laclede's Landing, the historic riverfront redevelopment currently underway in St. Louis, is reestablishing the city's identification with its 19th Century heyday. One renovated building within the development stands as a reminder of the Garden's history — Henry Shaw's cutlery warehouse, shown here during renovation, which was part of the business empire built by Mr. Shaw and which gave him the means to establish the Garden 119 years ago.

The building, at 612 North Second St., was purchased by St. Louis businessman Johnnie Joe Kennedy, completely renovated and opened as Kennedy's Second Street Company, a tavern and restaurant. A plaque mounted inside the building and a notation on the restaurant menu identify the building as Mr. Shaw's former business establishment.

Ice Cream Social

Velvet Freeze will sponsor the first Ice Cream Social at the Garden on Sunday, August 6, from 1 to 4 p.m. Members are invited to come and enjoy their favorite ice cream while listening to the harmonious melodies of a barbershop quartet.

A free gift will be given to children with the purchase of ice cream, and they may participate in a drawing for special prizes.

Pre-Tour Slide Show Set

Garden members and their guests have been invited to a special slide presentation on Australia/ New Zealand, focusing on areas that tour participants will be visiting in November. This program will be held at 8 p.m. Wednesday, July 12, in the auditorium of the John S. Lehmann Building.

This is a new program designed to make our members' trips more educational and meaningful.

VOLUNTEER COORDINATOR – Mrs. Carol Taxman, a Garden volunteer for the past four years, has been named to the Garden staff as Volunteer Coordinator. A native of Kentucky, Mrs. Taxman holds a degree in English Literature from Washington University and is an avid horticulturist and photographer. She is married to a physician and has two children.

Dr. George S. Bunting Makes Homecoming Visit

A recent trip to St. Louis was a homecoming of sorts for Dr. George S. Bunting, a former employee of the Garden who has lived and worked in Venezuela for the past 11 years. Dr. Bunting's return to St. Louis followed a 17-year absence — a period during which many changes have taken place at the Garden.

Dr. Bunting, presently the botanist at the new Botanical Garden of Maracaibo, Venezuela, came to the Garden to finish work on a paper he is writing in collaboration with Dr. Thomas Croat of the Garden's staff. Both are specialists in the aroid family and because this family is one that contains many undescribed species, the paper will attempt to introduce and standardize descriptive terminology, especially in the genus *Anthurium*.

Dr. Bunting holds a master's degree in horticulture from Michigan State University and a Ph.D. in taxonomy from Columbia University in New York City. He worked as a taxonomist at the Garden for two years, beginning his work with the Araceae. He then went to Bailey Hortorium in New York where he worked for six years helping to write Hortus Third, an encyclopedia of horticultural plants. In 1967, he moved to Venezuela where he began work on the Araceae for the Flora of Venezuela. His new position in Maracaibo draws upon his talents and training in both horticulture and taxonomic research.

A second purpose of Dr. Bunting's visit was to consult with the Garden's scientific and horticultural staff about a variety of topics dealing with the horticultural, curatorial and scientific aspects of a botanical garden. As he walked through the Garden to meet with various people, there were things he recognized and much he did not. When he left St. Louis in 1961, for instance, the Climatron was finished but the plants were young. While in the head house, Dr. Bunting met again Claude Johnson, one of only a few employees who remain from that period. In the herbarium, he renewed acquaintanced with Ken Peck and John Dwyer, other old friends who have been associated with the Garden for many years. Dr. Bunting plans to return to the Garden within the next year to spend more time working in the herbarium and library.

Dr. Bunting's visit coincided with that of another distinguished South American botanist. Dr. Enrique Forero — currently a Guggenheim fellow on leave of absence from his position as head of the Colombian National Herbarium in Bogota — was in St. Louis for a week to identify plants and consult with Dr. Al Gentry of the Garden staff. Drs. Forero and Gentry are conducting a joint research project to botanically explore the Chocó Department of western Colombia. This region — the wettest place in the world with 12,000 mm of annual precipitation — has been almost unknown botanically even though it is extremely rich in diversity of plant species. During his visit to St. Louis, Dr. Forero worked on identification of the Chocó plants collected by himself, Dr. Gentry and their students; and on the list of plant species of Chocó which the two scientists are compiling.

These visitors point out the increasing importance of the Garden's systematic staff and facilities to the botanical community. Visitors from around the world come to St. Louis in increasing numbers to work with the Garden's staff, to seek advice or to consult our excellent herbarium and library facilities.

The three new 1979 All America Rose Selections can be seen at the Garden in July. They are: Friendship, a fragrant, pink hybrid tea; Sundowner, a medium to large-flowered orange grandiflora, very fragrant, and the only grandiflora to receive the 1979 All America Award; and Paradise, a lavender-pink hybrid tea which is one of the most distinctive and beautiful roses ever produced. These roses are not available this year, but can be seen growing here at the Garden. These award winners have been in the Test Garden the past two years and have survived the winter conditions extremely well.

Rose Maintenance

Continue a good spraying program to control mildew, blight and insects on your roses. Alternate between Phaltan and Acti-Dione to provide control for black spot. Use Kelthane at regular intervals to control mite. Diazinon or Sevin will control most sucking or chewing insects. Spray immediately following heavy rain or when roses have made four to six inches of new growth. Apply the spray underneath the leaves as well as on top.

July is a good month to prune trees and fruit trees to open them up. When in full foliage, remove inner branches to allow better air and light circulation. Remove weak and/or water shoots (those which come up from the main trunk) to encourage good fruit spurs. Heading back fruit trees can help control the size.

Fertilizer should not be applied around plants such as trees and shrubs that need growth to mature and harden off for the winter months. However, feeding can be continued on roses until early August, and since there was poor growth last spring, additional feedings may be required this month to assure that plants are in vigorous condition for fall. Avoid using fertilizer after the 10th of August so plants may harden off. Vegetable gardens can be fertilized by applying a side dressing to crops. Make small furrows a couple of inches from the base of the plant, sprinkling a light amount of fertilizer, covering it with soil and then lightly watering. Liquid fertilizer may be watered in along the base of the plants. If applied over the foliage, follow with an immediate watering so the fertilizer does not burn the leaves.

Fall Planting

Mid-July is a good time to start planting fall vegetable crops, such as cabbage, cauliflower, broccoli, spinach and other plants which prefer cooler conditions. These plants, started now, will produce excellent crops in the fall when warm crop vegetables stop producing. Prepare the ground well, incorporating plenty of organic matter and superphosphate, sowing the seed somewhat deeper because of the drier conditions. Keep the ground moderately moist until seeds germinate.

July is a good month to start many of the biennials such as sweet williams and foxgloves. Seed sown this month should be sown in a good sterile media, kept in an area where temperature is uniform between 70-75°. Place the seedlings in plenty of light when they start to germinate and transplant when they have the second and third pair of leaves. Seedlings may be transplanted to cold frames or other trays where they receive good light and allowed to grow on until early September, at which time they can be planted out in the perennial garden for flowering the following spring. This is an excellent way to add color to the garden early in the spring.

Mulch should be applied to the garden, if not done earlier, and reapplied around trees and shrubs. This is important around azaleas, rhododendrons and other acid-loving plants which produce shallow root systems. Mulching helps to control soil temperatures and weeds. As the mulch breaks down, it supplies nutrients which are necessary for good plant growth. Water rhododendrons and azaleas particularly well during the next couple of months, especially if they are planted under other trees which tend to absorb a great deal of the water. Wilting of plants is often caused by inadequate root systems, but avoid overwatering. Do not allow plants to sit in poorly drained areas which are extremely wet. Check the soil at a depth of two to three inches to see if it is dry before applying water. When watering, apply amounts equivalent to one to two inches of rain at regular intervals. Avoid feeding fertilizer to these plants at this time of year, because it is necessary to let them start mature growth and harden off for proper winter protection.

House Plant Care

House plants should receive attention to make sure they are insect free. Rotate them from one side to the other to ensure that they receive uniform light to prevent them from growing in one direction. When going on vacation, give plants special attention by placing a couple of bricks at each end of the bathtub and then placing wood over these. Fill the tub to within about one inch below the base of the boards. Then place the plants on the boards. Adequate moisture is assured around them and plants can be stored for up to two to three weeks in this way. A second method is to place the plants in plastic bags. Place stakes in the pots to keep the plastic from collapsing on top of the plants. When placing plants in plastic bags, do not place them in the sun, because the plastic will act as a magnifying glass and heat them up. Given good light and a light watering before leaving, plants can be kept from four to five weeks this way without harm.

(Continued on Page 10)

GARDENING IN ST. LOUIS *(Continued from Page 9)*

New Ideas

While traveling during the summer, observe other gardens and plants. See what is growing well and look for something new and different. Check for hardiness to see how plants have come through the last two winters. With the prospect of more severe winters on the way, it is prudent to select plants which are hardy for the St. Louis area.

Trial gardens are set up in a number of different areas and are excellent places to see what is available in many of the new annuals and perennials for the garden.

—Robert J. Dingwall
Chief Horticulturist

Bonsai Featured

Margaret Zonia, plant shop employee, and a specimen of Bonsai.

The Plant Shop is featuring excellent specimens of bonsai this month. There are spruce, maple, and elm bonsai, which range in age from six to more than 20 years. The Shop has an assortment of shaping tools, planters and planter trays as well. Stop by the Shop and ask to see these fine specimens.

Teacher Workshop In Art/Science

The Garden and St. Louis Art Museum will co-sponsor a teacher workshop in July, concentrating on the interrelationship between art and science. Workshop sessions will explore the use of science to teach art. The emphasis in this workshop will be on increasing sensory awareness and changing perspectives.

This course will be offered from 9 a.m. to 3 p.m. July 24 through 28. The fee is $30 with two hours credit offered through Webster College. For registration and further information, telephone 772-7600, extension 54.

Members Reach Milestone

The number of Garden members has topped the 10,000-mark for the first time in the Garden's 119-year history, it was announced by the Members' Office.

The Garden's Board of Trustees and Staff wish to acknowledge this unprecedented level of community support and to convey warmest thanks for the ongoing assistance of the Garden's growing, active membership.

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In Memory of Dayle G. Klever
Mrs. Dayle G. Klever

In Memory of Mr. and Mrs. Walter Kostecki
Mr. Duane M. Smith

In Memory of Michael B. Lake
Mr./Mrs. Charles J. Moore, Jr.

In Memory of Mr. William T. Lane
Mrs. Jean-Jacques Carnal

In Memory of Mr. McMillan Lewis
Mrs. Jean-Jacques Carnal
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In Memory of Robert J. Liebe
William Livingston

In Memory of Augusta and Edgar Littmann
Carol Littmann

In Memory of Mrs. Conway Munro
Sunnyside Garden Club

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Mrs. Horton Watkins

In Memory of Dr. Morton Pariera
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In Memory of Frederick Wagner
Mrs. Joseph Bastian
Carol Kahler

In Memory of Bernhard J. Wander
Mr./Mrs. Walter C. Johanning

In Memory of Dr. Hugh M. Wilson
Dr./Mrs. John E. Hobbs

In Memory of "My Dad"
Sara L. Woodard

In Memory of Oliver K. Zepin
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MISSOURI BOTANICAL GARDEN BULLETIN
2345 Tower Grove Avenue
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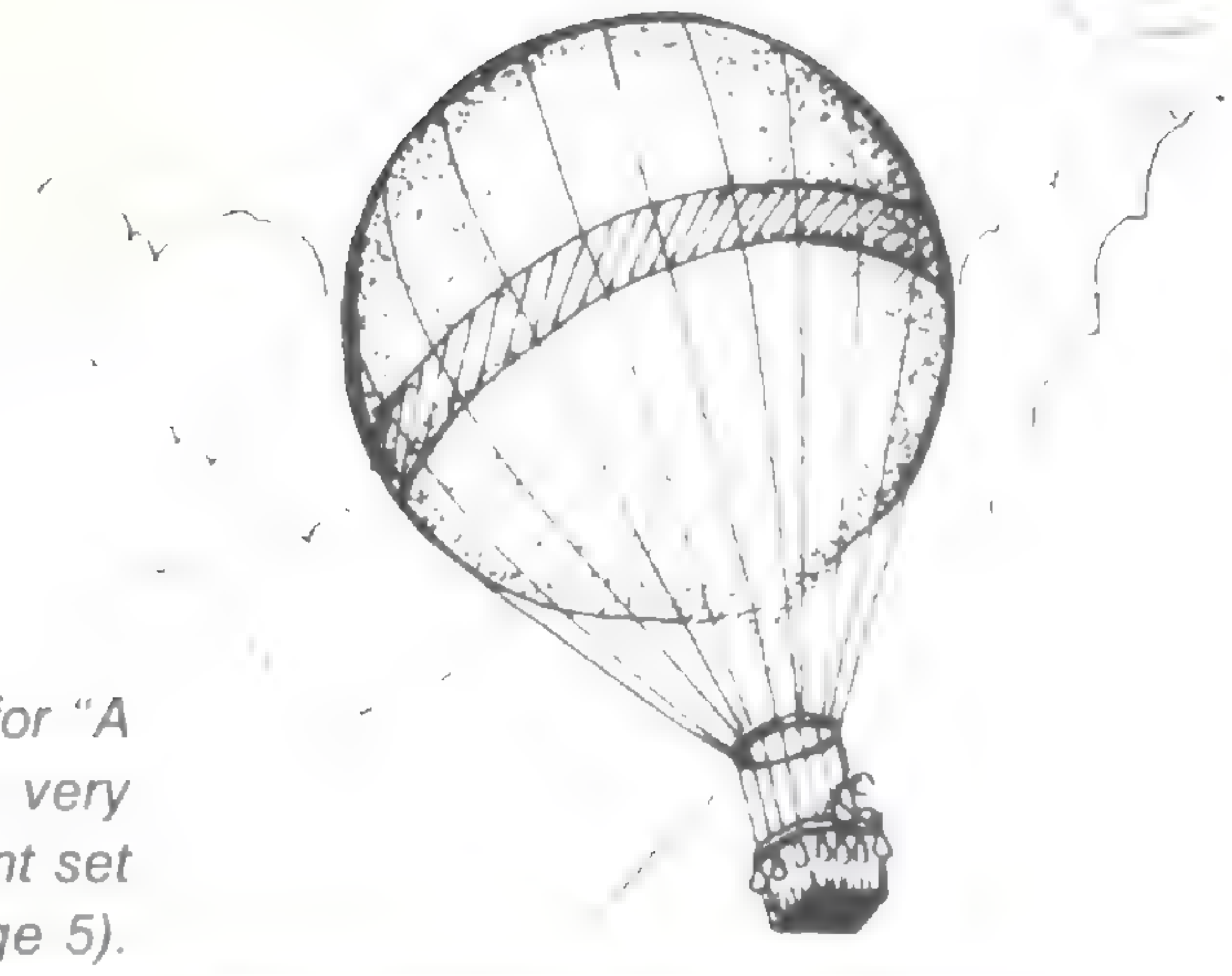


Up, up and away for "A Little Night Music", a very special Garden event set for Aug. 24 (see Page 5).

Million Dollar Contribution Boosts Development Drive To $5,000,000 Mark

Tom K. Smith, Jr., left, president of the Garden Board of Trustees, and Dr. Peter H. Raven, Garden director, handle heavy equipment to break ground for the new $1 million complex of maintenance buildings.

An anonymous contribution of $1 million has boosted the Garden's ongoing capital improvement and development drive past the $5 million mark, 80 per cent of the campaign's goal, it was announced by Tom K. Smith, Jr., president of the Garden's Board of Trustees.

"This most generous contribution, the largest single pledge of our current campaign, comes at a most appropriate time," said Mr. Smith. "It pushes us very close to our $6 million goal and provides fresh impetus to our campaign volunteers to redouble their efforts and ensure that this goal is reached."

The culmination of the campaign — construction of the Garden's new Education/Visitor Orientation Center — will depend on the Garden's success in raising the approximately $1 million needed to "top off" the campaign.

"It is important at this point," said Mr. Smith, "that we do not make the assumption that because we have reached the 80 per cent mark, the additional 20 per cent will naturally follow. This new building will represent the climax of all our efforts during this drive, and its construction will depend very heavily on where we go from here."

(Continued on Page 2)

Volume LXVI Number 8
August 1978

DRIVE REACHES $5 MILLION MARK . . .

(Continued from Page 1)

Meanwhile, however, the first spadesful of dirt were turned over for the beginning of actual construction funded by the development drive. On Tuesday, July 18, Mr. Smith and Dr. Peter H. Raven, Garden director, climbed aboard a bulldozer and broke ground for the new north end maintenance complex, designed by Ross & Baruzzini of St. Louis and to be constructed by Emmenegger Construction, Inc.

The new complex, planned to replace the antiquated structures currently in use for maintenance purposes, represents the first phase in the major physical renovation and construction made possible by the development drive and culminating in the construction of the Education/Visitor Orientation Center. It also represents an important element of the Garden Master Plan, developed by Environmental Planning and Design of Pittsburgh, Pa.

"It is very reassuring," said Dr. Raven, "to begin to see the physical results of everyone's work in this important development drive. If nothing else, the beginning of construction should convince everyone that with the maintenance complex and, later the Education/Visitor Orientation Center, we will have very much to show for our work in bringing the campaign to a successful climax."

The maintenance complex, constructed at a cost of $1 million, is scheduled for completion by early next year.

Mrs. William H. Hallett, immediate past president of the St. Louis Herb Society, inspects colorful quilt on loan from the Society for display in the Garden Museum. Wall hanging behind Mrs. Hallett was created and donated to the Garden by Society members Betty Carlin, Deede Cole, Jane Coultas, Carol Drennan, Melania Fathman, Edna Hager, Kitty Lawton, Barbara O'Brien, Judy Ross, Kay Strassner, Yolanda Wanek and Marie Zaegel.

Chicago Firm Purchases Garden's Plantscaping Services

An agreement was reached between the Garden and Tropical Plant Rentals, Inc. of Chicago, for the purchase of the Garden's horticultural services operation. Effective July 5, the Chicago-based firm took over all of the interior plantscaping installations and their maintenance services.

"In reaching the decision to terminate our horticultural services operation segment," said Dr. Peter H. Raven, Garden director, "we, of course, were very concerned to arrange for a continuation of these services for our established clients and our established plantscaping displays. Our search for an able and expert organization to perform this function led to our discussions with Tropical Plant Rentals, Inc."

The Garden's Horticultural Services Department was established in 1970, after designers of the Equitable Building approached Garden officials with a request for expert interior plantscaping services. Since then, the scope of the Garden's plantscaping services has grown to include a number of office buildings, banks, hospitals, restaurants and shopping centers.

TPR, established in 1963, is involved primarily in the business of plant rental, plantscape design and maintenance in the Chicago area. It has built a strong reputation for expertise and reliability among its Chicago clientele, and will provide that same strong level of service to its clients in the St. Louis area, Dr. Raven said.

"In fact," Dr. Raven added, "TPR will immediately establish a St. Louis branch office to serve its local customers."

During the past three years, TPR has expanded its activities throughout the Midwest and has also reached agreements for horticultural services with overseas clientele, principally in the Middle East, according to James Leider, president of TPR.

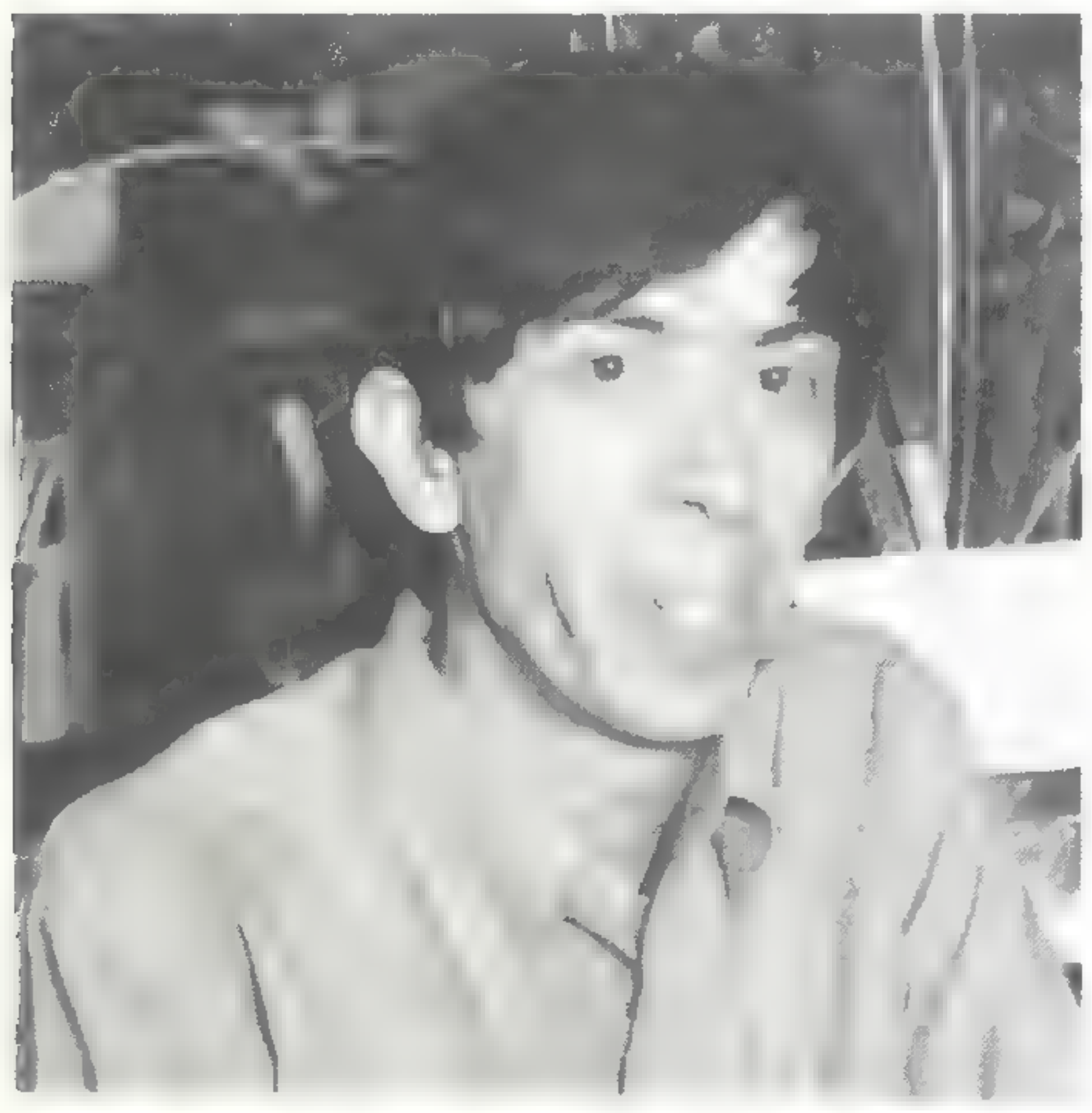
"We are very pleased with the prospect of becoming a part of the St. Louis community," said Leider. "We are very confident that we are capable of continuing the same level of expert service provided by the Garden's professional horticultural staff."

Tearoom Fare

The Tower Grove House Tearoom is now offering two salad lunches. Choose between a fruit plate or chicken salad for $4.50. These lunches are served from 11:30 a.m.-12:30 p.m., Tuesdays and Thursdays by reservation only. Call 773-9000 for reservations.

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Mo. 63110. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign.

Bulgarian Botanist Here On Exchange Program



Dr. Mincho Anchev

The Garden, a leading center for botanical research, often plays host to visiting scientists. For example, the calendar year of 1978 already has seen botanists from Israel, Colombia, Venezuela, Germany, South Africa, and Ghana working with various members of our research staff.

Presently, Dr. Mincho E. Anchev of the Institute of Botany of the Bulgarian Academy of Science is working here. His visit is part of an exchange program between the Bulgarian and U.S. Academy of Sciences. This program involves not only botanists, but also zoologists, chemists and other scientists from both countries.

Dr. Anchev's field of interest is cytotaxonomy, the study of chromosomes and their behavior. He received his Ph.D. in 1973 for work with the genus *Galium* (Rubiaceae, Madder family), and has continued studying cytotaxonomic relationships of other genera in this family. He is also a contributing author in the flora of Bulgaria *(Flora Republicae Popularis Bulgaricae).* With the seventh volume of this flora soon to be published, Dr. Anchev has begun to concentrate on other questions relating to plant population dynamics.

Human disturbances in natural populations of plants have made the very active progress of both weedy and non-weedy colonizing species more evident. Some of the questions Dr. Anchev seeks to answer are: what are the origins and distributions of the different plant forms? what are the breeding systems of these populations? how successful is each system?

Seeking a genus to serve as a model for this study, Dr. Anchev chose *Alyssium* (Cruciferae, Mustard family). This genus has at least 13 known species in Bulgaria and is closely related to *Lesqueruella* in America. For the past two years in Bulgaria, he has been determining the number of chromosomes in each Bulgarian species of *Alyssum.* Part of his purpose in coming to the Garden has been to further his studies in this genus.

Several members of the Garden's staff use cytology as one of the tools in their research. These people include Dr. Peter Raven, who works with Onagraceae (Evening Primrose family), Dr. Peter Goldblatt, with Iridaceae (Iris family) and Dr. Gerrit Davidse with Gramineae (Grass family). Dr. Anchev chose to come to the Garden to study the techniques used by these people, particularly Dr. Raven.

As part of his research, Dr. Anchev has been studying methods of fixing flower buds and staining chromosomes. Very young buds are necessary for making observations of chromosomes during meiosis. These observations aid in the study of hybridization. Use of the scanning electron microscope at Washington University has enabled him to obtain valuable information concerning morphological differences between species of *Alyssum.* He is also working on a survey he hopes to publish of the literature concerning population biology.

As an outgrowth of his visit, several interesting new projects have been begun. Working with John Elsley and members of the Garden's staff, Dr. Anchev is planning an exchange of plants between the Garden and the botanical garden near the Bulgarian capital, Sofiya. He has prepared an initial list of 11 species of Bulgarian trees and shrubs that the Garden will cultivate here.

The idea of introducing plants from central Europe into cultivation in Missouri is not a new one, but began more than 40 years ago with the work of the late Edgar Anderson, a former director of the Garden. He visited the Balkan countries and returned with three varieties of ivy. Among these the Bulgarian Ivy *(Hedra helix)* was the most successful, and can be seen in the Garden's mausoleum area.

While preparing his list, Dr. Anchev, who knew of these transplants, kept in mind Dr. Anderson's observations of the peculiarites of Missouri's "soy bean" climate. Dr. Anderson had noted that Bulgaria at approximately 42°N latitude and Missouri between 36-39°N have similarities in their climate which would allow the same plants to grow in both countries.

The extinction of plant species in Europe, due to glaciation during the Pleistocene, accounts for what Dr. Anchev considers to be one of the most interesting things he has seen in Missouri; that is the higher diversity of tree species here. Compared to Bulgaria, Missouri has more species of trees and other perennials.

In other less scientific respects, he has found St. Louis to be very similar to his hometown of Sofiya (population 919,037). The American people were also as he had expected from viewing American movies, television programs and reading newspapers.

While in America, Dr. Anchev plans to visit the U.S. National Herbarium and the Smithsonian Institution. He also will be visiting American colleagues at the University of California's Berkeley, Davis and Los Angeles campuses. In Los Angeles, he will visit with Dr. Harlan Lewis, former advisor of Dr. Raven and co-author with him on several papers. Dr. Lewis also works with Onagraceae.

While working at the Garden, Dr. Anchev has lectured on the flora and vegetation of Bulgaria.

Mrs. Nora Stern: Profile In Service

Mrs. Nora Stern, left, president of the Executive Board of the Members, and Mrs. Mim Kittner, first vice president, preside over the board's recent annual meeting.

Mrs. Nora (Walter G.) Stern has become a familiar figure at the Garden. As president of the Executive Board of the Members, 1969 to 1972 and currently from 1977 to 1979, she has been active in a variety of Garden events.

The recent Picnic at the Garden, on June 10, is an example in point. Whether she was arranging for hostesses to be present at various points in the Garden, greeting guests and friends or tucking a bottle of wine into a picnic basket, her presence assured the smooth running event that brought raves from all who attended. Though such special events have become routine to Nora, these are only a small part of her responsibilities as president. Serving on the board she directs are the guide chairman, volunteer coordinator, preview party chairman, trip chairman, Historical Committee liaison, Garden Gate Shop representative, membership and development representatives.

In addition to serving as president, Mrs. Nora Stern has served as chairman of the preview party committee, preview party hostess, and Chrysanthemum ball official. She also serves on the board of Mary Institute.

Those who have worked with Mrs. Nora Stern consider the association a pleasure. The Garden is proud to salute Mrs. Nora Stern for her continuing record of service.

The Wardian Case

A new feature in the Plant Shop will be called the "Garden Corner." For sale will be selected cuttings of plant materials growing in the Climatron. Among the potential varieties will be succulents, tropicals and orchids. These will be for sale on a periodic basis as they become available.

Don't forget Plant Shop gift certificates for those special occasions. The Plant Shop is retailing daily, 10 a.m. to 4:30 p.m., seven days a week.

"Africana" Is Theme Of Cactus Society Show

The Floral Display House will provide the setting for the annual show of the Henry Shaw Cactus Society. The theme this year is "Africana," with members of the Society placing entries in a number of sections. The show will run from August 26 through September 4. There is no charge other than the regular admission to the Garden.

Education Department Prepares For Future

Mr. Kenneth Peck

Mrs. Calla Smorodin

The Garden's new Education/Visitor Orientation Center, responding to community needs in the field of education, is coming close to reality. The new center will significantly increase the Garden's capacity and diversity for classes, lectures and workshops. To meet this increased demand and in anticipation of this increased versatility, several new appointments have been made in the Education Department.

Ken Peck will be responsible for continuing education programs, which will include adult education, the answerman service, the development of a teacher resource center, out-state services and workshops.

Mr. Peck has had a long and fruitful association with the Garden, going back 21 years. He is a graduate of Duke University with an advanced degree in botany. Many articles and papers written by Mr. Peck have been published in various publications. He is married, the father of five children and resides with his family in Webster Groves.

Calla Smorodin has been appointed chairman and administrative manager of program development for the Education Department. As such, she will be responsible for developing liaisons with local school districts, working with the State Department of Education, writing proposals and developing new educational programs.

Mrs. Smorodin looks forward to the continuing challenge of this new opportunity at the Garden.

For the past two years, Mrs. Smorodin has served as project manager, Environmental Education Training Project at the Garden, a cooperative program with the St. Louis Public Schools funded by the U.S. Office of Environmental Education.

Prior to that, Mrs. Smorodin served in the Division of Planning and Program Development for the St. Louis Public Schools. She is currently at work on her master's degree at St. Louis University, is married to a St. Louis University associate professor of education and has two children, both students at the university.

BUYER GUIDES – Mrs. Sue Chalfant, left, and Mrs. Betty Sims, two of the volunteer buyers who serve the Garden Gate Shop, inspect some of the ususual items currently available at the shop. Other members of the Shop's corps of volunteer buyers include Mrs. Margaret Baldwin, Mrs. Celeste Lipscomb and Mrs. Betty Freeman.

"A Little Night Music" Set For August 24

A new event has been scheduled for the Garden on Thursday, August 24. For the first time, the entire Garden will be open in the evening and will be illuminated by candles placed along the walkways, lending an air of magic to a very special evening.

Entitled "A Little Night Music," the evening will feature some very special entertainment, a variety of interest to both adults and children.

The colorful Arrow, a 70-foot hot air balloon, will be inflated and tethered adjacent to the Japanese Garden; a cricket demonstration will be staged behind Tower Grove House; Henry Shaw's country house will take on a special charm during the candlelight tours of the entire house; music will be provided by a string trio, strolling musicians and madrigal singers. The event is scheduled for 7-10 p.m., with no charge for members and regular gate admission for guests.

Come join us for this special evening.

Sunshine and Summertime... A Garden

Mrs. Nora Stern, president of the Executive Board of the Members, welcomes guests to picnic fare.

Climatron provides backdrop for belly dancing demonstr

Afternoon feast, picnic-style, in Garden setting.

cnic on the Grass —

Nearly 700 Garden guests were on hand on Saturday, June 10, to enjoy a *Picnic at the Garden,* a unique event which featured basket suppers on the Garden grounds and public performances by the St. Louis Soma Theatre, the Grand Fuzz, the St. Louis Banjo Club, the Brass Quintet of the St. Louis Symphony Youth Orchestra and Simone, the Bellydancer.

As part of the celebration, a display entitled "Herbs in Art" was presented by the St. Louis Herb Society in the Museum Building.

Proceeds from the highly-successful event will go toward the cost of the Garden's new electric, environmentally-sound public transportation system, the tram system which went into operation in April.

Entertainment provided by the big brass of the Grand Fuzz band.

Picnic guests make use of the Garden's new tram system.

A Visit to the Arboretum

Shaw
Arboretum

→ Brush Creek
Trail

Monet: Gardener And Artist

It is not unusual for a particular place or a particular object to figure importantly in an artist's life *oeuvre*. It *is* unusual when the artist himself creates such a place, as Monet did at Giverny.

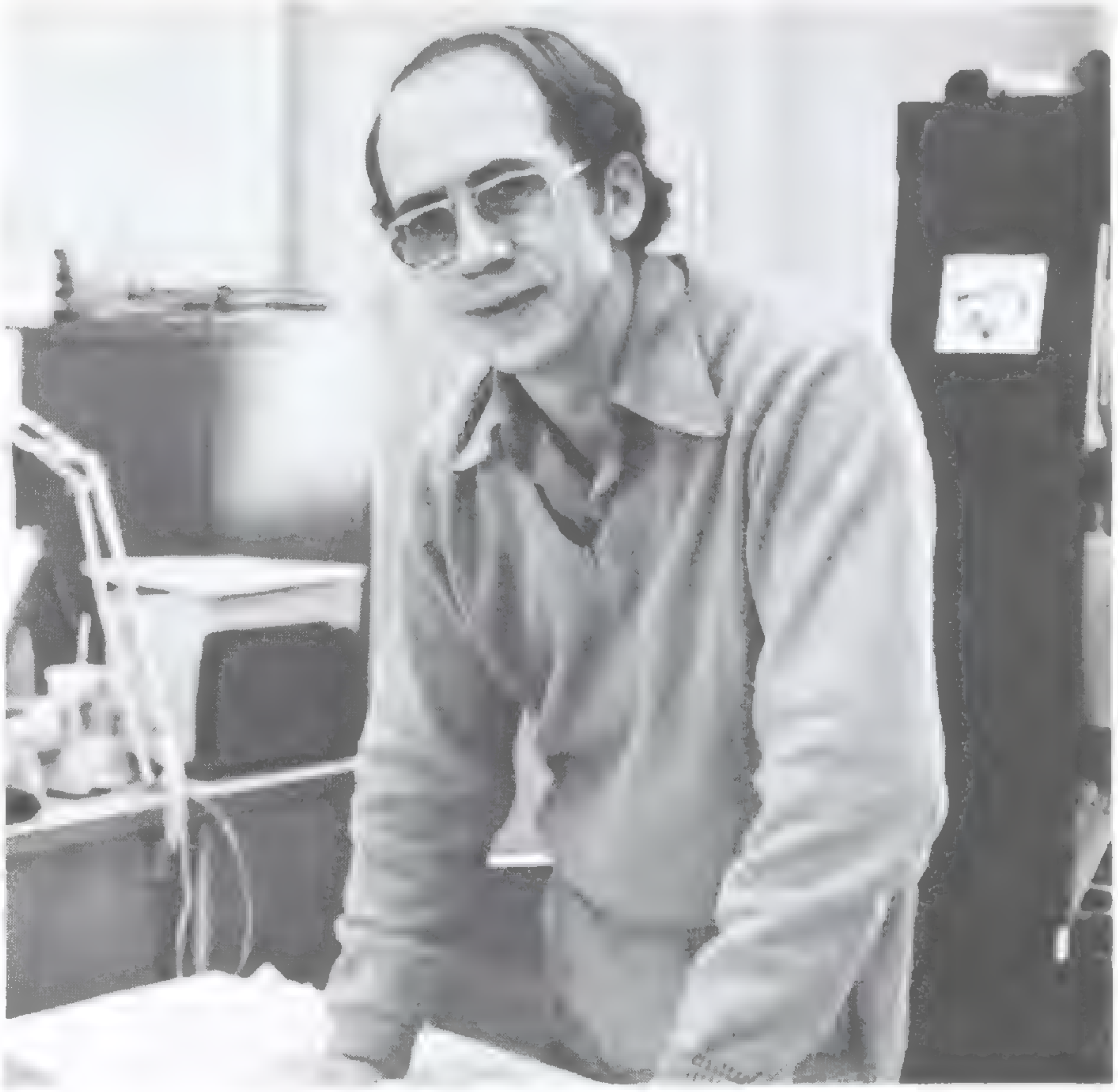
"Monet at Giverny," the special exhibition of the St. Louis Art Museum, covers the efforts of the artist to capture what his mind's eye beheld of the lush garden setting he created. Monet withdrew to the pastoral life at Giverny in 1883 and began to devise a garden of lush texture, colors and shapes in rectangular beds. He was his own gardener until he hired one in 1892.

In 1893, Monet bought the marshy tract across the railroad tracks and began the garden which became the focus of both his life and art in his final years. A pond fed by a stream, the Ru, was excavated; gingkos, willows, Japanese cherries were planted; a Japanese style footbridge placed across the narrow end of the pond; the pond itself planted with the water-lilies that recur in his last works: in brief, a garden of Oriental inspiration but in important respects—easily comprehensible by comparison with the Japanese Garden here—not an Oriental garden. Especially does it diverge in its ignoring of symbolic aspects. Its artist and orchestrator was, after all, of the Impressionist school that was fascinated by the mechanics of vision.

Monet was not engaged in putting his garden on canvas. He was portraying evanescence of the garden: the changes of color, light and life. Though few of his pictures are portraits, his canvases are concerned with people as the garden is wrought by man. Painting what he saw was a frustratingly unrealized goal for Monet. And who has essayed a garden who cannot comprehend Monet's frustration?

Monet at Giverny, about 1926 (photo by Nickolas Moray, courtesy of the Metropolitan Museum of Art, The Museum of Modern Art, New York).

R. H. Daley Appointed To New Garden Post



Richard H. Daley

Richard H. Daley has been appointed special assistant to Dr. Peter H. Raven, Garden director, effective July 1, 1978. In his new post, Mr. Daley will be involved in long term projects on behalf of the director. His first assignment is to seek funding for the rehabilitation and restoration of the Garden's historical buildings.

Mr. Daley has been at the Garden for more than five years. He was appointed chairman of the Ecological Services Department in September, 1977, and has been involved in the study of endangered species in Missouri, an ongoing project.

Mr. Daley holds a graduate degree in ecology from Colorado State University. He is married and lives on the grounds of the Shaw Arboretum.

Garden Receives Foundation Grant

The National Science Foundation, one of the nation's premiere scientific organizations, has awarded the Garden a grant to support the ongoing series of Annual Systematics Symposia held here. Foundation support of this important program, approved on scientific merit for approximately five years, is evidence of the high reputation the Garden enjoys among national scientific and cultural institutions.

The Systematics Symposia at the Garden attract botanists and research scientists from around the nation each year, as well as scientists from international institutions. They provide a public forum for the exchange of ideas and research conclusions in systematics and other topics.

The program is under the direction of Dr. Gerrit Davidse, Assistant Curator of Botany at the Garden.

Gardening in St. Louis

The hot days of August do not inspire vigorous gardening. However, certain tasks do need to be done. Cool fall crops not planted late in July should be planted immediately. Work up the soil, adding organic matter and a balanced fertilizer such as 12-12-12. Rake the ground, level and sow seed. Seed at this time of the year should be planted somewhat deeper than in the spring, when soils were cooler and more moisture existed. Keep the ground moderately moist until seeds germinate and then mulch immediately to control weeds. Good vegetables for planting now are carrots, lettuce (particularly some of the leaf and head lettuces), broccoli, cabbage, cauliflower, radishes and spinach. These plants, although they will grow slowly when first started, will gradually increase growth rates as nights become cooler and will amply reward the gardener with vegetables later on.

Annuals on display can be improved by cutting back heavily and following with a feeding of a liquid fertilizer and, if needed, spraying with a good fungicide such as Captan or Benlate. In a short time, plants will begin to flower and continue into the fall months.

Rose and Lawn Care

Roses should receive their last feeding of balanced fertilizer. Continue spray programs for the control of leaf blight and mildew as well as to keep insects under control. Roses that have been adequately tended, with proper amounts of water and fertilizer, should be growing well and should reward the grower with flowers throughout the next two to three months. When watering make sure that it penetrates. Water every 10 to 12 days.

Lawns should be checked for signs of sod webworm. If this is a problem, spray immediately with Diazinon according to directions. Apply to the lawn when it is moderately moist or follow with a good watering. Repeat in seven to 10 days for at least two more applications. Prepare to reseed bare areas late in August or early September.

Flower Drying

This is an excellent time to collect flowers for drying. One good method is to hang them upside down to air dry in a dark area. By this method the flowers retain much of their form and color. First, strip off the leaves, fasten the flowers in little bunches by twisting a rubber band or tie a wire loosely around the stems and hang them from a clothes line in a garage, attic or closet. Drying time varies from a few days to more than a week. The more quickly flowers dry, the truer their colors remain. Flowers that are good to dry include daisy, salvia, marigold, baby's breath, cattail, goldenrod, Queen Anne's lace, yarrow and wild grass. Small delicate flowers and grasses should be dried flat by laying them on fine wire screens or elevated above the floor. They should also be kept in a dark, dry place.

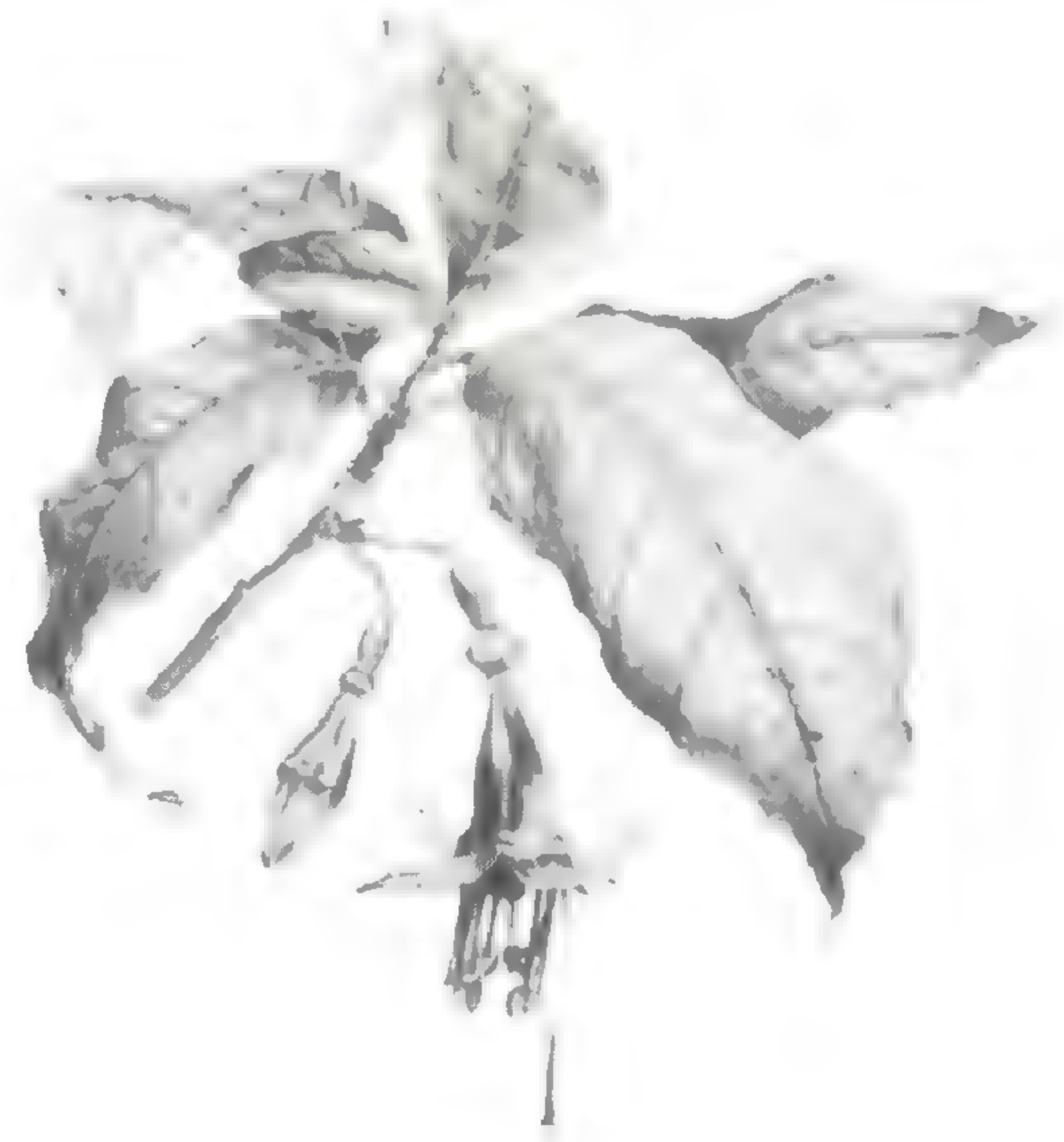
Another technique for drying plants is to cover them with a moisture absorbing mixture. You may purchase selica jel crystals at garden supply houses, florist shops and garden centers under a variety of trade names, or you can make your own moisture absorbing mix by combining equal parts of household borax and cornmeal. Clean white sand also works well. Before you put the flowers in the drying mixture remove the stems, insert a piece of florist wire through the center of each bloom, make a small hook at the end of the florist wire, pull the wire through the flower until the hook catch is hidden by the flower petals and cut the wire to two-inch length. After the flowers have dried you can make stems any length you want by adding more wire to the two-inch length and wrapping the entire stem with green florist tape. Dried flowers make ideal arrangements for the winter months.

This is a good month for visiting other gardens and making note of flowers you want to have for your own garden next year or of changes that need to be made.

—Robert J. Dingwall
Chief Horticulturist

KEITH WEST,

ILLUSTRATOR



Fuchsia excorticata

An old friend has been back at the Garden for the last few weeks, working on his illustrations in the botany department. Keith West, noted botanical illustrator, is staff artist for the Department of Scientific and Industrial Research in Christchurch, New Zealand.

Mr. West has collaborated with Tamra and Peter Raven on a research project and is illustrator of their book, *The Genus Epilobium (Onagraceae) in Australasia: a systematic and evolutionary study.* In addition, he was the artist who drew Trelease's larkspur, prints of which are available for sale at the Garden Gate Shop.

Mr. West will make several other visits to botanical institutions in this country before returning to New Zealand via England and Africa. The Garden looks forward to his return in 1980.

Tours

Members' Trip To Winterthur

The Tower Grove House Historical Committee is sponsoring a four-day tour October 9-12, which includes private morning and afternoon tours of the Winterthur Museum, former home of Henry Francis duPont, with its unique collection of American furniture, silver and art objects from 1640 to 1840. Other highlights of the tour will be historical houses in the Germantown and Fairmont Park areas of Philadelphia. A tour of "Andalusia," the Greek revival mansion, will be a highlight of the visit to Bucks County, Pa.

Space is limited. For further information and reservations, call Montclair Travel, 367-3000, or Tower Grove House, 773-9000.

Hawaiian Tours Scheduled

A Garden tour of Hawaii is being planned for next January and February by the Members' Office and Tauck Tours. Members should receive brochures describing the trip within the next two months, but may obtain additional information immediately by contacting the Members' Office at the Garden, 772-7600.

The tour itinerary will feature the neighbor islands where true Hawaii still lingers, including eight days on Molokai, Hawaii, Maui and Kauai. In addition, five days are planned for a visit to the main island of Oahu and colorful Honolulu, the island state's capital city.

Springtime For Members In Australia, Tahiti

Escape the onset of winter in Missouri by joining Garden members on a tour to New Zealand, Australia and Tahiti, November 3 through 25 — spring in the land "down under"!

Isolated from the rest of the world for 50 million years, these land masses have evolved many unique species of flora. Among these are the strange "black boy" grass tree and the ancient palms of Central Australia. Orchids abound in tropical Queensland while other wildflower varieties extend throughout all climate zones. Special botanical tours to private gardens by local horticultural societies have been arranged for this trip.

The tour will be escorted by Dr. Marshall Crosby, director of research at the Garden. Cost includes round trip air transportation from St. Louis, first class hotel accommodations, most (33) meals, cruises on Milford Sound and the Hawkesbury River, all admissions and sightseeing as listed in itinerary and many more exciting highlights. For additional information and a brochure, call the Members' Office at 772-7600, ext. 25.

Organic Gardening Workshop

A one-day workshop on Organic Gardening will be given at the Shaw Arboretum from 10 a.m. to 3 p.m. on Saturday, August 12. The instructor for this workshop will be William Davit, naturalist on the Arboretum staff. The culture of vegetables using natural methods and materials will be discussed. Soil preparation, mulching, and composting techniques will be demonstrated in the instructor's garden on the Arboretum grounds.

The fee for this workshop will be $8, or $6 for Garden members. Advance registration is required: call 772-7600, extension 81. Participants will meet at the Visitor Center at Shaw Arboreum in Gray Summit, Mo.

Mark Your Calendar

Aug. 6	Ice Cream Social — 1-4 p.m.
Aug. 24	An Evening in the Garden — "A Little Night Music" — 7-10 p.m.
Aug. 26-Sept. 4	Henry Shaw Cactus Society Show — Floral Display House — 9 a.m.-5 p.m.

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MISSOURI BOTANICAL GARDEN BULLETIN
2345 Tower Grove Avenue
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Missouri
Botanical
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Bulletin

A Rose By Any Other Name ...

Futura, *above, orange Hybrid Tea, gold medal winner; and, inset upper right,* Electron, *Hybrid Tea.*

The world's oldest cultivated ornamental, the rose, is held in such esteem that it has two homes at the Garden and a test garden at the Shaw Arboretum in Gray Summit, Mo.

Scientifically, the rose is of the botanical order *Rosales,* an ornamental and food plant which counts many well known fruit-bearers among its relatives—the strawberry, raspberry, blackberry, apple, pear, peach, apricot and plum. Its blossoms are unparalleled in fragrance and color.

Rose history is equally colorful. Fossilized evidence discovered in Oregon and Colorado has dated the forerunners of the modern rose at between 35 and 70 million years old. The history of its cultivation is supported by rose-reliefs minted on Central Asian coins in 4,000 B.C., rose representations on European frescoes in 1600 B.C. and an ancient Coptic manuscript telling of roses blooming amid the splendor of the Hanging Gardens of Babylon.

Legend, in fact, dates the flower even further into the past—to the Garden of Eden.

The rose can be traced through history as an ornament and a medicine in the culture of ancient Greeks and Romans, as an emblem for the early Christian church, as a part of coats of arms for royal families during the Middle Ages.

By 1829, some 2,000 varieties had been developed and named world-wide. Today that number exceeds 3,000.

There are some 5,000 examples of 200 rose species native to the world's north temperate zones and higher elevations of south temperate zones in India and Mexico. The Garden's specimens are contained in two rose gardens—the Anne L. Lehmann Rose Garden and the North Rose Garden. Each variety blooms in cycle during the summer months and blossoms anew with special brilliance late into the fall.

Behind the scenes is the test garden now located at the Shaw Arboretum. The Garden is one of 36 test centers for the All America Rose Selections. In test plots, experimental hybrids are planted as part of the AARS program—the beginning of a two-year test for fragrance, hardiness, disease resistance and color which each new variety must pass before it is made available commercially to the nation. Of the 40 or 50 test varieties planted each year, two or three are usually award winners.

Each year, the award winners are planted in the Garden's permanent collection, where visitors may inspect them for a year before they are presented commercially to the nation.

Such scientific functions ensure that the botanical and horticultural lore of the rose, beyond its beauty and fragrance, will remain a focal point in the living legacy of the Garden.

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September 1978

Bootheel Trip Scheduled

Join the Arboretum for a chartered bus trip to explore various natural features of Missouri's Bootheel, September 30-October 1. The tour group will visit the Mingo Swamp Wildlife Refuge Area (a remnant of the rich and diverse Mississippi flood plain swamps once occupying vast portions of the southeastern corner of the state), Big Oak Tree State Park (home of numerous state and national champion sized trees), Holly Ridge (a recently acquired natural area of the Missouri Department of Conservation), and Bird Hill (with numerous large specimens of the native beech).

Jon Hawker, noted local naturalist and professor of biology, will accompany the group as guest naturalist. The fee includes chartered bus, motel accommodations, and two lunches. A restaurant stop will be made for Saturday dinner and Sunday breakfast, but these are not included. Previous natural area trips sponsored by the Arboretum have been filled rapidly, and early registration is suggested.

Fee: members: $42.00 (single occupancy), $38.00 (double occupancy).

Non-members: $48.00 (single occupancy), $44.00 (double occupancy).

Members To Tour Hawaii

Enjoy the carefree enchantment of the Islands in complete luxury as part of a Garden members' tour. Included is Oahu, where Honolulu is located, and the best of the neighbor islands to give you a comfortable, well-balanced program of sightseeing, recreation and leisure. The tour is scheduled for February 7 through 20, 1979. For further information, call the Members' Office at 772-7600, ext. 25.

Pring Memorial Planned For Japanese Garden

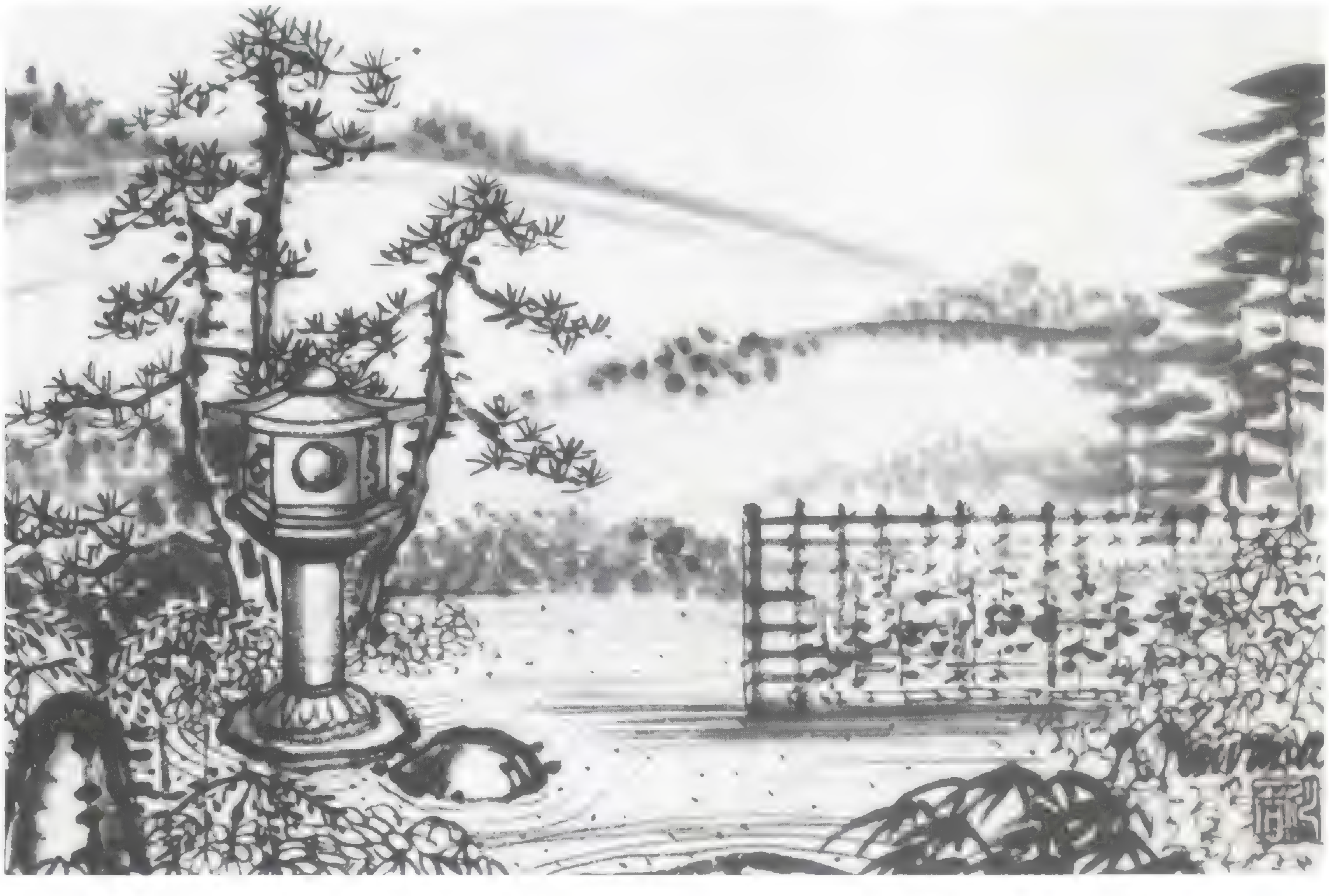
Over the years, many individuals and groups have contributed funds to establish a memorial to George H. Pring, long-time Garden staff member and devotee and his wife Isabelle. The decision has been made to construct a special garden within the Japanese Garden in the Prings' name. It is especially appropriate since this was a favorite area of the Prings, although of course, the Japanese Garden was not in existence at that time. The Pring Memorial Garden has been designed by Koichi Kawana, designer of the Japanese Garden.

This will be a lovely reminder of a man who was a member of the Garden staff for fifty-seven years, and a woman who was influential in the establishment of the auxiliary which operated Tower Grove House.

Mr. Pring was born in 1885 in Devonshire and trained at Kew at a very young age. He came to this country with a desire to work at the Garden, joining the staff as foreman of the orchid department in 1906. His life was devoted to orchids—he judged them, wrote about them, collected them throughout the world. Mr. Pring also developed lilies for the pools, a subject he studied thoroughly.

In 1928, Mr. Pring was appointed Superintendent of the Garden, a position in which he served until his retirement in December of 1962. He and Mrs. Pring remained in the St. Louis area until her death in 1969. Mr. Pring then moved east to live with his daughter.

The Prings' devoted service to the Garden will be commemorated in the lovely new area to be constructed in the Japanese Garden.



The Pring Memorial Garden, planned for the Japanese Garden and designed by Prof. Koichi Kawana of UCLA, designer of the Japanese Garden.

The Garden Looks To Its Future . . . New Appointments

Arthur M. Dye, Jr.

Alan Godlewski

Charles W. Orner

Several new appointments announced by Dr. Peter H. Raven, Garden director, emphasize the fact that the Garden is looking to its future. With the Garden's development campaign well underway, ground broken for the new maintenance complex and plans being finalized for the new Education/Visitor Orientation Center, new personnel have been appointed to direct and participate in the Garden's future development.

The Garden extends a warm welcome to Messrs. Godlewski and Dye and congratulates Mr. Orner on his promotion.

ARTHUR M. DYE, JR.,

Arthur M. Dye, Jr., has accepted the position of assistant director effective August 15. He was formerly director of development for the Kirksville College of Osteopathic Medicine in Kirksville, Missouri. In that position, he was responsible for college and hospital fund raising, public relations, publications and alumni activities. He has extensive experience in long range planning.

In addition, Mr. Dye has served as director of development for Wilmington College, Wilmington, Ohio; and as executive secretary for the American Friends Service Committee, Philadelphia.

Mr. Dye holds a graduate degree from Putney Graduate School and had his undergraduate training at Davidson College in North Carolina.

In a recent interview, Mr. Dye stated that he saw his role at the Garden as principally one of resource development. The expanded programs, building rehabilitation and building program all will require new resources in order to be carried to completion.

The new assistant director also feels a strong commitment to the Garden's neighborhood and to the community. His sense of excitement about the Garden and its future is quite contagious. He sees gardening as an art form in which everyone is a participant.

ALAN GODLEWSKI

Alan Godlewski assumed the post of chairman of the department of grounds at the Garden on July 17. He has spent the past few weeks becoming familiar with the Garden and the staff, and assessing the condition of the present collection of plants. Mr. Godlewski will supervise a staff of 13 people in his new role.

Mr. Godlewski brings special talents and experience to the Garden. He has been superintendent of Gardens at Filoli Center, Woodside, California, supervising the maintenance of 18 acres of formal gardens, greenhouse production and display, water gardens, kitchen and perennial gardens. He was responsible for an educational program that included personnel training, student intern program, summer programs for college students, volunteer training and public education in practical horticultural subjects.

Mr. Godlewski has a master's degree in horticulture from the University of California, Davis. He has a strong background and interest in teaching. His hobbies include photography, skiing, travel and white water rafting.

CHARLES W. ORNER

Charles W. Orner has been appointed assistant director of the Garden and will continue to serve as controller and secretary of the Board of Trustees.

Mr. Orner has been at the Garden in his present position for five years. Prior to his appointment he served as vice president of Morgan Wightman Company.

Philly Tour Reminder

Just a reminder, if you haven't yet made your reservations for the Philadelphia trip, that there is still time. The Historical Committee of Tower Grove House is sponsoring a tour October 9, 10, 11 and 12 to Winterthur Museum and Gardens, Wilmington, Delaware, and outstanding historical homes near Philadelphia. Space is limited. For information call Montclair Travel, 367-3000, or Tower Grove House, 773-9000.

Fall Plant Sale, Sept. 30-Oct. 1

The third annual fall plant sale will be held in the Floral Display House on Saturday, September 30 and Sunday, October 1, from 9 a.m. to 5 p.m. Thousands of plants will be offered at a special 20% discount to members.

Bears, elephants, turtles and frogs will be attending with Ms. Carolyn Pokorny, their creator. The animals are creeping fig (*Ficus pumila*) topiaries designed by Ms. Pokorny and will, of course, be for sale.

A botanical art show also will complement the sale. Watercolors of botanical themes by Lisa Carriel will offer another opportunity to take some of the Garden home with you. A featured item offered for the first time will be antique "collectable" tree labels dating to the 1920's. These labels, no longer in use, will make clever conversation pieces.

Experts will be on hand to answer questions concerning home horticulture.

'You Run Wild and Free . . .' A Child's View of Nature

During a recent educational session at the Garden, part of the Pitzman summer program, children were placed in "magic spots" and told to pretend to be the animal of their choice. Students then wrote something about what it felt like to be that animal, or what the animal would do. A sampler:

* * *

What It's Like To Be a Horse

You have a feeling of freedom. You run wild and free and nobody ever cares. The silence around you is peaceful and lovely. Other animals around (such as the raccoon) go along with their own business, never caring who sees them working. BUT THEN, footsteps in the grass, laughing, talking, HUMANS. As quick as a streak of lightning every animal fleds in terror, even me the brave and beautiful horse fleds from the sight of them. They bring fires, and destroy our means of living. But soon they have passed and life begins again.

—Amy W.

* * *

Being a Animal
Raccoon

Animals crawl, walk, swimm, slide.
Animals eat one another
It's some of a food chain.
All animals are nice in some way.
But sometimes the balance of nature is upset, by man mostly.
Many animals are in terror of being killed. But now, animals are being saved. Animals are beautiful. But some animals called humans don't think this way. If only something would change their views.
Being a animal is easily said but not easily done.

—Jill D.

* * *

Planning a plant purchase, during the Garden's highly-successful 1977 Fall Plant Sale.

Members' Tour 'Down Under'

Each spring in Christchurch, New Zealand, the population is feverishly involved in the annual competition for the judging of the most beautiful gardens on public and private grounds. With its 2,120 hours of annual sunshine and equable climate, producing fantastic growth and riotous color, Christchurch truly deserves its title of "Garden City."

As one of its special features, the November 3 Garden tour to New Zealand, Australia and Tahiti has been invited to visit many of the award-winning private gardens where native flowers can be seen, including the Kowhai, Kaka's Beak, Clematis and Euschia.

Tour members also will be privileged to visit Milton Park Gardens in Bowral, New South Wales, Australia. This 1,200-acre property contains a beautifully landscaped spring garden with lilacs, dogwoods, rhododendrons and azaleas. There are walls and blocks of sandstone and the largest piece, weighing several tons, forms a trough and fountain in the sunken garden.

Other highlights include a Milford Sound cruise and a visit to an authentic Australian sheep station.

Since spring in that unbelievable land "down under" is in our fall, the tour departs November 3 and returns November 25, 1978, so that members may enjoy the South Pacific scenery at its finest.

Tour price is $2,916.00, including deluxe hotel accommodations, all air fare and most meals. For further information, call the Garden, 772-7600, or Montclair Travel, 367-3000.

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Mo. 63110. Second class postage paid at St. Louis, Mo. $5.00 per year. $6.00 foreign

Garden Participates In Mark Twain Summer Institute

The Mark Twain Summer Institute has been providing enriching and challenging learning experiences for the area's exceptional secondary school students for 20 years. The Institute draws upon institutions and universities and their faculties to offer such courses as astronomy, advanced biology, experimentation physics, chemistry, music, art, drama, philosophy, Chinese, Russian, computer and creative writing.

This year the Garden participated by offering a course in botany. The class met for 3½ hours each day from June 19 to July 28, for a program designed to give the students a glimpse of the cultural, political and economic aspects of botanical activities and botany as a pure science.

The Garden's Desert House, Climatron, Mediterranean House and herbarium were educational backdrops for lectures on medical botany, plant nomenclature, flower and vegetative structures, desert plants, rain forests, flower pollination and grasses.

Students participated in a review of research carried out by botanists on the staff. One, in which the Leakey Foundation solicited Dr. William D'Arcy in 1975 to study the vegetation of the African mountain gorilla's habitat and diet, gave students an insight into the political problems of trying to save that animal and habitat from extinction. Another research project of Dr. Peter Goldblatt's for the USDA illustrated the use of botany to study a political and economic problem—how to eliminate illegal heroin traffic while ensuring medicinal and therapeutic drug derivatives from the opium poppy. Dr. Goldblatt, after investigating relatives of the opium poppy, was able to collect seeds to initiate cultivation of *Papover bracteatun*, which provided the beneficial drugs but no heroin derivation.

Dr. D'Arcy explored the concept of tropical rain forests, the plants of which are so well represented in the Climatron, and the significance of trying to save some of these valuable regions in Central and South America.

John Elsley introduced students to some of the philosophic suggestions of Japanese gardens in relation to the culture and religious beliefs of Japan. The lotus, the iris and the pine convey symbolic meaning to the Eastern mind, while the arrangement of the garden itself subtly refers to greater themes of life. The Japanese Garden, Seiwa-En, exemplifies many of the expressions of Japan's gardens.

In addition to the Garden's facilities, students visited several industries to study the economic significance of plants. A field trip to Ralston Purina's protein division enlightened students to the future importance of soy protein in meeting the world's food needs. Discussing Monsanto's agricultural products research emphasized the role that increased understanding of plant physiology coupled with chemistry and economics plays in stimulating productivity and profit for farmers. Seeing the fermentation process at the Anheuser-Busch brewery awakened students to the importance of plant products (rice, barley, hops, beech chips) and organisms (yeasts) in brewing beer.

The course enabled students to utilize the resources of the Garden and the community to fulfill the goal of the Institute for an enriched and unique learning experience for its students.

Bill D'Arcy, center, and Jan Saunders, of the Garden staff, supervise a Climatron botany class as part of the 1978 Mark Twain Summer Institute program.

Garden Potpourri, Summer St

HAPPY BIRTHDAY HENRY SHAW

Henry Shaw's Birthday Party, a recent carnival-under canvas at the Garden.

Japanese Garden wood ducks are welcomed by Dr. Peter H. Raven, Garden director (left); Alan Godlewski, chairman of the Department of Grounds (center); and Karl Slagle of the Missouri Department of Conservation (right).

Lori Pollack, a Purdue University student working at the Garden for the summer, is hip-deep in her pool-cleaning duties.

e . . .

A special Neighborhood Garden Party, organized by the Membership Committee of the Executive Board, treated residents of the Garden's neighborhood to an evening tour, displays by the various Garden departments, refreshments and fun. Clockwise from above, Garden displays attract visitor interest; clowns and kids add to the festivities; and visitors use the new electric tram system to "get around."

Oakland, 19th Century home, is surrounded by oak trees given by Henry Shaw to his friend, Lewis Benoist, and bears a resemblance to Tower Grove House.

Pilgrimage Week Is September 22-October 1

With much of its original Victorian furnishings intact, Tower Grove House on the Garden grounds will be one of the most popular attractions during St. Louis' sixth annual Historic Pilgrimage, a week-long program of tours and special events to be held September 22-October 1.

Landmarks Association of St. Louis, Inc., and the Missouri Historical Society are co-sponsors of the event, which will feature 24 outstanding Pilgrimage locations, including several private residences.

A tour of the near South Side on Sunday, October 1, will feature Tower Grove House and the Chatillon-DeMenil House, a Greek Revival style house elaborately decorated with ornamental ironwork. The Lemp Mansion, former home of St. Louis brewer William Lemp, will be the featured luncheon stop, and a walking tour of the ambitious renovation work being done in the LaSalle Park area will round out the day's Pilgrimage.

Other tours will visit:

Oakland: Italianate country estate built in 1852 by Louis A. Benoist, a close friend of Henry Shaw. Designed by Shaw's architect, George I. Barnett, Oakland shares many structural similarities with Tower Grove House.

Hawkin House: A Greek Revival style, two-story brick house built in 1857 by the son of the maker of the famous Hawkin rifle, features a 19th century flower and herb garden with sundial in the rear of the house.

Laumeier Memorial Park: A peaceful park, once a family estate, containing more than 40 pieces of sculpture by St. Louis sculptor Ernest Trova. The main house, an elegant stone mansion, is used as an art gallery featuring rotating exhibits.

St. Charles Wine Garden: Lunch will be served at this outdoor restaurant on a bluff overlooking the Missouri River, during a pause in a day-long visit to St. Charles, Mo.

The National Shrine of Our Lady of the Snows: Lunch at the Shrine will be followed with a riding tour of the grounds during the visit to the Cahokia and Belleville, Ill., areas.

A variety of other attractions will also be on tap during Historic Pilgrimage '78, including the St. Louis Miniature Exhibition at the Chase-Park Plaza, September 22-24; an exhibit of 19th century costumes, quilts and coverlets at the Madison County Historical Society; the annual Arts and Crafts Fair at the Sappington House, October 1; and a slide show, "Laclede's Landing . . . An Historic Perspective," shown daily at 9:30 am. in the Missouri Historical Society, Jefferson Memorial, Forest Park.

The cost for the "Bus and Lunch" tour is $16.50 per person and includes transportation, guided tour, lunch and all admission fees. Tours will be held Tuesday, September 26 through Sunday, October 1.

A free descriptive brochure listing all tours and houses is available by contacting the Missouri Historical Society. Reservations for bus tours close September 15 and early reservations are recommended.

For information, tour reservations or tickets, contact Mrs. Mary Daly, Missouri Historical Society, Jefferson Memorial Building, Forest Park, St. Louis, Mo. 63112, telephone: 314/361-1424.

Tropical Biology Study

The Committee on Research Priorities in Tropical Biology, of which Dr. Peter H. Raven is chairman, met at the Garden for the second time in July, to discuss present and projected rates of tropical forest destruction and to establish the methodology for a survey into the matter.

To quote from the Committee's report:

"The tropical moist forest biome is biotically the richest and most complex region on earth. Scientifically it is the least explored. In terms of survival prospects, it is often considered to be the most threatened biome on earth. If present land-use trends and exploitation patterns persist, large parts of the region will be grossly disrupted if not destroyed during the course of the next few decades. This impoverishment would mark a significant and irreversible loss to society, now and forever."

The principle purpose of the survey will be to document and analyze the present extent and nature of the destruction of tropical forests.

Staff Art Exhibit

Members of the Garden staff will exhibit all forms of artwork at a special show scheduled from September 11 to October 15, in the John S. Lehmann Building lobby. Represented will be drawings, photographs, paintings, prints, woodcarvings and sculpture.

Landscape Design, Course III

Course III, Landscape Design Study in the continuing series, will be offered on October 10 and 11, at the J. C. Penney Continuing Education Building at the University of Missouri-St. Louis. The course is open to the public, with no prerequisites.

The instructors are horticulturists, botanists, foresters, and landscape design architects.

One section of the course, entitled "Plants and Design" and scheduled for 1:15 to 2:45 p.m. Wednesday, October 11, will be conducted by Robert J. Dingwall, the Garden's chief horticulturist.

For assistance in understanding the course material, the following reading assignments are suggested: *An Introduction to Landscape Architecture,* Laurie (Pp. 45-84; 133-166); *Landscape Architecture,* Simonds (Pp. 1-41); *The Book of Landscape Design,* Ortloff and Raymore (Pp. 213-264; 278-290); and *Redoing America,* Faltermayer (Pp. 1-118).

Any questions about the course should be directed to Dorothy A. Jones, University of Missouri Continuing Education-Extension Division, 8001 Natural Bridge Road, St. Louis, Mo. 63121, telephone (314) 453-5961.

The overall course fee is $25 with a one day fee of $15. Mark your calendar and please register well in advance to insure prompt receipt of materials.

Tower Grove House Christmas Card

A winter scene of Tower Grove House, right, will be the subject of the Garden's 1978 Christmas cards, currently available at the Garden Gate Shop. The cards, in full color, are packaged 20 to a box and sell for $5.50. Through September 30, a special members' offer will be in effect – $4.50 per 20-card box.

Vacations are about ended and gardeners must now plan for fall care of the garden. Make note of any changes you wish to make in the garden for next spring. Otherwise, they will tend to be forgotten over the coming months.

September is the ideal month for lawn renovation. Growing conditions this past season have produced good lawns for the most part. Adequate rain early in the spring resulted in excellent growth and continued throughout most of the late summer. If the grass is long and spongy, it is usually an indication that thatching needs to be done. Power rakes are available which can be adjusted and will remove dead thatch. This should be done as early in the month as possible. Following thatching one should also consider aerating the lawn, particularly areas that receive a lot of wear and tear. Follow these procedures with a feeding program using a fertilizer such as a 12-12-12 at the rate of four to five pounds per 1,000 square feet. Areas which were thin or weedy should be reworked to a depth of six to eight inches, incorporating plenty of organic matter and reseeding with a good seed mix. In purchasing lawn seed, make sure you purchase seed of high quality. This usually costs a little more but the grower is assured of a better type of grass. Use three or four mixes together for best results, rather than just one variety.

Sodding can also be accomplished successfully this month. The ground should be worked thoroughly, adding organic matter, lime, if necessary, and a balanced fertilizer, raking until the area is smooth, then a light rolling and placing the sod on top. Water sod thoroughly. Newly seeded areas should be kept moist until the grass is well established. As the weather cools off, the mower can be lowered so it is cutting about one and one-half to two inches for the balance of the season.

Compost Pile

September is an ideal month also to start composting with the clean up of the garden. There is a great deal of garden debris that can go into the compost pile. Start with a layer of coarse material, six to 12 inches deep, then a layer of fine material for 12 inches, water this heavily, then a layer of coarse, alternating back and forth until you reach a height of three to four feet. The size of the pile depends on the amount of material you have. It should be located in an area near the garden but where it can be screened from the house so that the sight is not objectionable. Enclosing the compost pile with a fence of some type will prevent animals and the wind from spreading it around. If properly planned and carried out, there will be no problem with insects or small animals in the compost pile. It is important, however, to keep the pile wet at regular intervals to allow for good decay. It is also advisable to add old compost to the various layers of the pile to introduce bacteria which will hasten the breakdown of the new material.

House Plant Care

House plants should be checked thoroughly to make sure that they are ready for the winter. Repot where necessary, cut plants back to encourage bushiness, and check thoroughly for insects and disease. If plants have been outdoors, spraying the plants with a good insecticide and watering with a mild insecticide will get rid of any insects that are present. The first step should be to turn the pot sideways to break up any roots that may have gone into the ground. Then lift them up on top of the soil and let them sit there a day or so. Next, move them to a sheltered spot for three or four days, where they get less wind and where light is somewhat reduced. During this period, keep the pots on the dry side. After several days in a protected spot, move them to a garage or other area where air circulation is good and light is still reduced. After a couple of days there, they can be moved into the house. During the shorter days of the fall, plants are not growing as actively, so be careful in feeding. Less fertilizer is needed as plants start to go dormant. Flowering plants should receive regular feeding programs to keep them flowering and in good condition.

Perennials

This is a good month to divide perennials, being careful to remove sections from outside the clump and discarding the centers which are old and woody. Beds for perennials should be worked to a depth of 12 to 14 inches with plenty of organic matter and superphosphate, setting the new plants in and watering well. They should be given several inches of mulch to control ground moisture and temperature. Plants divided early in September should have a good root system established for overwintering.

September is the ideal month to divide and reset peonies. Be careful in replanting peonies that the crown is no deeper than an inch below the soil line. Planting too deeply results in failure to flower.

Garden Chores

Mid-September onward, with cooler weather, many of the evergreens can be transplanted successfully or can be purchased from the nursery. A trip to the nursery to examine plants and select ones you want is highly recommended, with delivery arranged for the proper planting time. Fall is an excellent time for selecting deciduous plants, choosing them for their colors. This should be done over the next month or six weeks; have them delivered for planting in late October. Fall planting has an advantage, since the ground is relatively warm and although the plants are dormant, they will continue to make good root growth and with a good mulching will be in better condition than plants set out in early spring.

(Continued on Page 11)

Pruning of late summer blooming shrubs should be completed late this month. Cut the plants back to control the height and also remove two or three of the old branches at ground level to induce new growth. Prune away any weak or broken branches. Cold frames should be throughly cleaned, removing any wanted plants. Weed and prepare soil and frames for later use or for early spring use for starting vegetables. Some plants can be grown on in the frames, such as lettuce, spinach, cabbage, broccoli and radishes for late fall and early winter use.

— Robert J. Dingwall
Chief Horticulturist

Reflections . . . The Garden Revisited

The Garden has produced a color pictorial guide of the Garden. It is a 48-page book of 90 photographs spanning the seasons at the Garden and Arboretum. The booklet will sell for $2.95 and is available at the Garden Gate Shop or through the mail. For mail orders, add 60 cents for shipping and handling.

Fall Lecture Series

The theme for the Fall Lecture Series is botanical research. The wide range of topics explores the diversity of work being conducted in the world of plants. All lectures are scheduled for Wednesdays at 10:30 a.m. and 8:00 p.m. in the John S. Lehmann Building Auditorium. The schedule:

Sept. 13	Botanical Research at the Garden, Dr. Peter H. Raven, Director.
Sept. 20	Flowers and their Visitors: Pollination in Tropical Plants, Dr. Alwyn Gentry.
Sept. 27	Plants: Solution to the Energy Crisis?, Kurt Thies, Professor of Chemical Engineering, Washington University.
Oct. 4	Life in a Tropical Forest, Dr. Thomas Croat.
Oct. 11	Habitat and Diet of the Mountain Gorilla, Dr. Marshall Crosby.
Oct. 18	Poppies and Politics, Dr. Peter Goldblatt.
Oct. 25	Missouri Wildflowers, Erna Eisendrath, Research Associate.
Nov. 1	Mushrooms and Other Fungi, James Maniotis, Associate Professor of Biology, Washington University.
Nov. 8	Protecting Missouri's Endangered Species, John Wylie, Missouri Department of Conservation.

Members and their guests are encouraged to attend this special series.

Specimen Dahlia, among those to be exhibited during the Garden's upcoming Dahlia Society Show, scheduled for September 23-24 in the Floral Display House.

Mark Your Calendar

Through Sept. 4	Henry Shaw Cactus Society Show continues, Floral Display House, 9 a.m.-5 p.m.
Sept. 9-Oct. 1	"Fancy Foliage and Flowers," Climatron, 10 a.m.-5 p.m.
Sept. 11-Oct. 15	Staff Art Exhibit, John S. Lehmann Building lobby.
Sept. 16-17	Harvest Show, sponsored by Men's Garden Club, Floral Display House, 16th, 2-5 p.m., 17th, 9 a.m.-5 p.m.
Sept. 16-Oct. 15	"Living Stones of South Africa," Desert House, 9 a.m.-5 p.m.
Sept. 23-24	Dahlia Society Show, Floral Display House, 23rd, 2-5 p.m., 24th, 9 a.m.-5 p.m.
Sept. 30, Oct. 1	Plant Sale, Floral Display House, 9 a.m.-5 p.m.

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MISSOURI BOTANICAL GARDEN BULLETIN
2345 Tower Grove Avenue
Saint Louis, Missouri 63110

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Missouri
Botanical
Garden
Bulletin

Mum's The Word: The Show Must Go On

Chrysanthemum shows are a tradition at the Garden, dating back to November 13, 1905, when the first show opened. It is fortunate for those who enjoy the shows so much today that the then horticultural staff and Director Dr. Trelease were not faint-hearted — for the travails they suffered and the obstacles they faced during the early years of the exhibitions would surely have caused lesser gardeners to abandon even the thought of such projects forever.

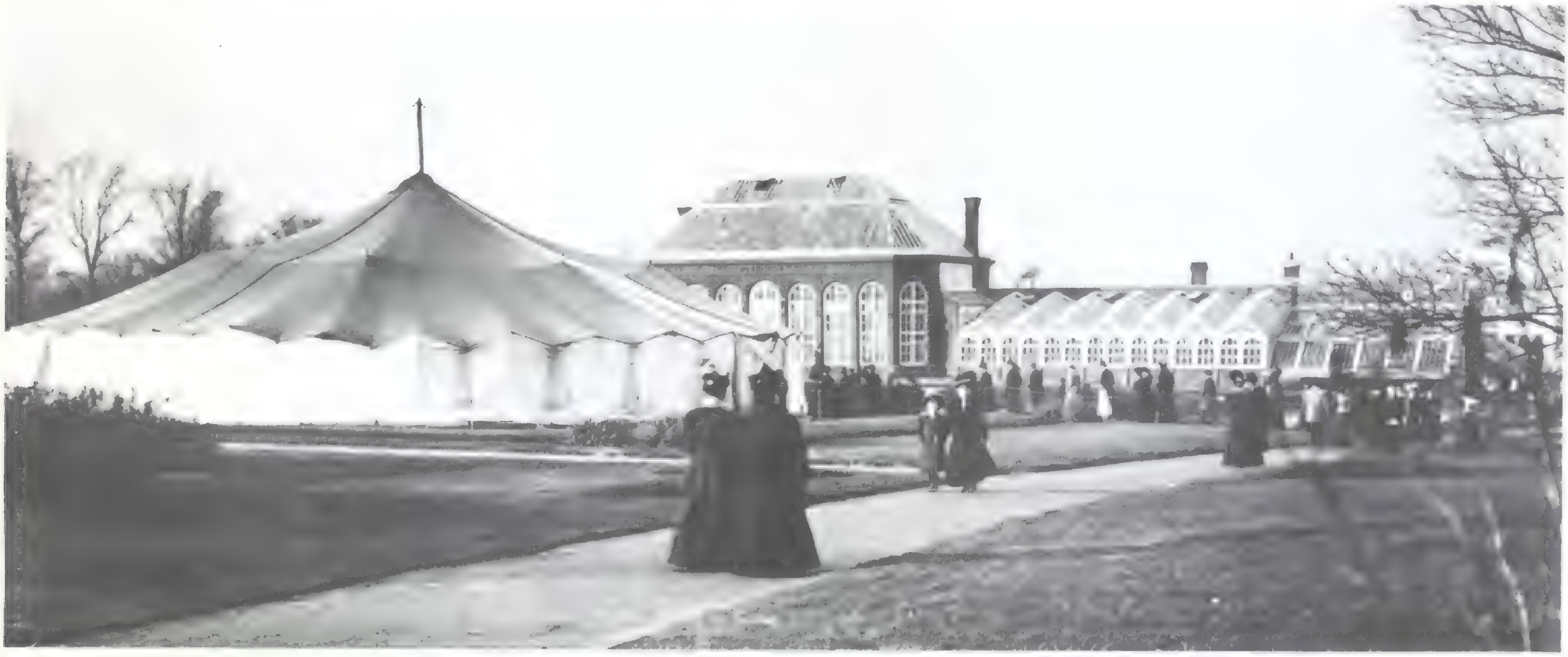
In 1905, there was no greenhouse or conservatory large enough to house the display of nearly 2,000 chrysanthemum plants. That year, they were exhibited for two balmy weeks under a canvas tent-like cover, and viewed by more than 25,000 people (one-fourth the total number of visitors for 1905).

Encouraged by the success of the show, and the many compliments received on the beauty and variety of the plants, Trelease and his staff expanded the exhibition the following year. In 1906, gardening students and staff cultivated nearly 4,000 chrysanthemum plants, representative of 316 varieties, and prepared the display under a tent nearly 100 feet in diameter located on the "parterre" (the area of the Garden where the main lily pools are now located).

When the show opened on November 11, 1906, visitors were treated to a fairyland of mums, artistically arranged beneath the big tent and grouped in displays according to blossom type. They were also "treated", during the twelve days the show was opened, to three days of hard rain, a two-day sleet storm, two and one-half inches of snow, and nearly six days of smoke pollution so bad that the show could not be viewed because it could not be *seen* without the aid of electrical lights.

When Dr. Trelease contacted the electric company

(Continued on Page 2)



Chrysanthemums under canvas, the Garden circa 1909.

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October 1978

MUM'S THE WORD

(Continued from Page 1)

about installing lights in the tent so that visitors could see the show through the haze of smoke, he was informed that there was no way the light company could handle his request on such short notice. Undaunted, he found a volunteer — "a Capt. Robert McCulloch of the United Railways Company" — who installed the lights in less than two hours.

The gardening staff and students tended the mums around the clock, replacing those few that succumbed to the fluctuations in temperature and the smoke that penetrated the scant protection of the unheated canvas tent. They braved the cold and wet during the entire time that the exhibition was open and guided visitors through the show, answering their questions about specific varieties of mums and display and growing techniques.

The public responded to the display with support and high enthusiasm. A local street car company hung special placards advertising the show on many of its cars, the St. Louis press gave the show thorough, almost daily coverage, and visitors arrived by the thousands despite the snow, rain, sleet and smoke.

Not easily dismayed by adversity, Dr. Trelease decided that since it had been necessary to install the lights for use during the day, why not use them at night as well? So, for the last eight days of the exhibition he had the show remain open until ten o'clock at night. Despite the fact that most of the open evenings were stormy, 2,657 persons came out to view the chrysanthemums during the evening hours.

Throughout the two weeks of the show, despite the "phenomenally bad weather" (as Trelease put it in his *Annual Report* for 1906), despite the lack of heat in the show tent and the smoke pollution, the show was so well received that its future as an annual event was assured. A distinguished Japanese visitor gave the show the highest compliment he could imagine when he told a local paper that the Chrysanthemum Show at the Garden was of a quality "to equal if not surpass the most luxuriant royal exhibits of Japan."

—Jean Marie Deken
Garden Library

Systematics Symposium Oct. 20-21

The 25th annual Systematics Symposium will be held October 20-21, 1978, at the Garden. The topic this year will be palynology and systematics.

Among the featured speakers will be Professor J. Heslop-Harrison, University College of Wales; Mr. Jan Muller, Rijksherbarium, Leiden; Dr. Joan W. Nowicke, Smithsonian Institution; Dr. Donald E. Stone, Duke University; Dr. Robin W. Thorp, University of California, Davis; Dr. Spencer Tomb, Kansas State University; and Dr. James A. Walker, University of Massachusetts.

Fall Chrysanthemum Show Set for Oct. 28

Don't miss the annual Fall Show this year, beginning October 28 in the Floral Display House and running through November 26. The Members' preview party will take place Friday, October 27, from 5 to 7:30 p.m. This special preview will be sponsored by Carondelet Savings and Loan.

A new feature this year will be a display of three dozen hardy mums. The gardener will have the opportunity to closely scrutinize the varieties of chrysanthemums available for the home grounds. Pot plants will number 1,200 with 75 cascading types, two dozen hanging baskets (Japanese cultivars) in a range of flower types from daisies to decoratives. The color range will be dazzling. A special feature will be bonsaied chrysanthemums. Plans for the show insure an extravaganza — don't miss it!

The Garden Gate Shop will be open during the preview party.

The Fall Show has been made possible through the assistance of the Missouri Arts Council.

Dr. Viktor Muehlenbach, a Garden research associate since 1955, will celebrate his 80th birthday on Wednesday, Oct. 11. Dr. Muehlenbach's current studies include plants of his native Latvia, plants introduced into St. Louis railway yards and botanical contributions made by medical doctors

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Mo 63110 Second class postage paid at St. Louis, Mo $5.00 per year $6.00 foreign

Garden Club Show

Mrs. Robert Wanek, center, chairman of the upcoming East Central District, Federated Garden Clubs of Missouri show, prepares display with the help of Mrs. John L. O'Brien, left, staging chairman, and Mrs. Charles Hardie, show co-chairman.

The East Central District, Federated Garden Clubs of Missouri, Inc., will present its show, "Fun with Color," from 2 to 5 p.m., October 7, and 9 a.m. to 4 p.m., October 8, in the Floral Display House.

The competition is limited to members of the East Central District, Federated Garden Clubs of Missouri, Inc.

Awards will be presented in a number of categories in both design and horticulture. The show will be a color and design extravangaza and is a must to see.

Joint Environmental Project Completed

The Environmental Education Training Project has completed its two-year mandate to develop a model for training teachers in environmental education. Sponsored jointly by the Garden and the St. Louis city schools, the project has been supported since July, 1976, by grants from the U. S. Office of Environmental Education to the St. Louis Public Schools.

The project was designed to assist elementary teachers in developing environmental education materials and to prepare them to train other teachers. Over the past two years, project managers Peggy Rustige of the city schools and Calla Smorodin of the Garden have provided training to a core group of 19 teachers. The training focused on the concepts, goals and techniques of environmental education; curriculum development; teacher training; and the utilization of community resources.

In the second year of the project, the trained teachers offered workshops for other city teachers through the Inservice Center and Harris Teachers College.

Project co-director Edward Ortleb, science supervisor for the St. Louis Public Schools, has worked closely with Smorodin and Rustige to enable some of the project's training activities to be ongoing. For example, the trained teachers will continue to offer workshops through the Inservice Center, Harris Teachers College, and other inservice activities sponsored by the city schools. Continuing to serve city teachers will be the Consortium, representing over 25 civic, cultural, environmental, and educational institutions. Organized at the beginning of the project, the Consortium is made up of a dedicated group of individuals who participated throughout the project as planners, workshop leaders, curriculum consultants and data collectors.

The project managers have written a guide which sets out the training model and documents their experiences. Entitled *Classrooms and Community, A Process Guide for Teacher Training in Environmental Education,* it will be available soon for distribution to school systems, state education departments, and institutions of higher education throughout the country.

Big Push Ahead For Capital Campaign

Paul Prejza, left, of the Santa Monica design firm of Graphics Plus, works with Dr. Peter H. Raven, Garden director, on interior design plans for the Garden's new Education/Visitor Orientation Center, a principal component of the current development drive.

An effort to push the Garden's Capital Campaign over its six million dollar goal by the end of the year is under way. According to Tom K. Smith, Jr., completing the campaign early will not be easy.

"However," Smith said, "we need to get the new visitor center and other improvements started as soon as possible."

Arthur Dye, newly appointed Garden assistant director and director of development, feels that meeting the advanced schedule will be difficult but not impossible.

"We have confidence that we'll achieve our goal," said Mr. Dye, "though we know that it will require all of our best efforts toward that end."

While the campaign progresses, work proceeds in other areas. The construction of the new maintenance complex is underway. A visit to the construction site will offer daily evidence of progress.

The plans for the Education/Visitor Orientation Center are being further defined. A grant of $6,034 from the National Endowment for the Humanities for interpretive displays in the building now moves the interior design program into its definitive phases. Matching monies in the amount of $11,800 will be required. This grant is an exciting component of the new building.

In addition, the firm of Deborah Sussman and Co., Graphics Plus, of Santa Monica, California, has been retained to work with the designers and staff on the interior of the new building. The firm is one that has worked with Charles Eames & Associates over a long period of time. Mr. Paul Prejza of Graphics Plus, visited the Garden in August and began preliminary discussions on the project.

Botanists Abroad

An International Legume Conference was held during July and August in England, under the sponsorship of the Royal Botanic Gardens, Kew, and the Missouri Botanical Garden.

Dr. Peter H. Raven, Garden director, opened the conference. The first week was devoted to papers dealing with systematics, evolution and relationships of the Leguminosae with the objective of producing an improved classification of the family. The second week was devoted to agronomy of related fields. One aim of this part of the conference was the compilation of a "Manual of Legume Crops" which is being collated by Dr. J. A. Duke of the U. S. Department of Agriculture.

Dr. Peter Goldblatt presented a paper reviewing the chromosome cytology of the Leguminosae.

"The conference was extremely successful," reports Dr. Goldblatt, "and the meeting resulted in great progress in the collective understanding of Leguminosae, both from scientific and economic points of view."

The Garden Herbarium: A Growing Collection

The color yellow seems ubiquitous in the fall landscape — witness the profusion of black-eyed Susans, goldenrod and the common sunflower.

Try to imagine, however, the roadsides and fields without any of these plants we take for granted. People who have travelled to other countries may recognize that in those places the species, genera or even families of plants that grow at home are often absent. For example, there are no sunflowers in Japan. A botanist in Japan finds only three species of *Solidago* while his colleague in the U.S. has more than 130 species to study. Of course, someone studying other species may find the opposite case. There are fewer species of orchids in the U.S. than there are in Panama.

One way for a research botanist to solve this problem is to borrow plant specimens from herbaria in other countries. This is a common practice at the Garden. Last year more than 22,000 specimens were sent from the herbarium to botanists in many countries, including France, Germany, Venezuela and Japan. Similarly, staff and students at the Garden borrowed more than 50,000 specimens.

In many ways, the herbarium is like a library; it serves as both an educational and a research facility. As such, the more complete its collection, the better able it is to serve those who use it.

The Garden's herbarium contains nearly three million dried plant specimens and adds about 75,000 specimens to this number each year. This is accomplished through the collecting efforts of the staff at the Garden and collectors in other countries. The Garden also purchases dried specimens. Plant exchanges between herbaria are another way an institution builds up its collection. Sometimes the exchange may be one-for-one. For a special plant, however, the exchange ratio may be three to one.

With the aid of the federally-funded CETA program, the Garden embarked on a plant collecting project this summer. The aim of the program was to collect specimens of local plants which could be exchanged for plants from herbaria in Japan, Pakistan, Poland, Portugal, Sweden, Russia and Canada. Another goal was to educate and train young people for potential careers in botany.

The three CETA employees — David Bell, Chrystal Ann Harris and Clyde Niblett — aided in the collection of more than 1,000 specimens (excluding duplicates) from Missouri and Illinois. From June 19 through August 18, they accompanied members of the Garden's staff (curators Drs. Davidse, D'Arcy and Gentry; curator-in-training Dr. Poston; technicians J. Saunders and J. Cablish) or Garden students (D. Lorence and J. Solomon) into the field. The habitats from which they collected included marshes, glades, forests, riverbanks and roadsides.

Cinchona pubescens, *an herbarium specimen.*

Each day, in spite of heat, insects and an occasional rain, these three young people learned first-hand something of what it means to be a plant collector. They would choose a site with a number of different flowering plants, and proceed to dig or cut off a plant or a flowering branch. The specimen was then placed in a sheet of folded newspaper to be taken back to the Garden and dried. Careful notes of the collection number and observations about the plant were taken and will be placed on a label that is mounted alongside the dried plant specimen.

It is through such efforts that the Garden's collection is increased and that it obtains additional material to use in exchanges and loans.

'The Tulip, Peacock Among Flowers'

A special lecture, "The Tulip, Peacock Among Flowers", will be given by Mrs. A. G. Trevenen James on Monday, November 6, at 10:30 a.m. and again at 8 p.m. Mrs. James was born and spent the first 16 years of her life in Java, Dutch East Indies, where her father was a provincial governor. She thus experienced the influence of oriental art from an early age.

Mrs. James completed her education in Holland, the homeland of Rembrandt and Vermeer, and later, with her Royal Air Force husband, lived in British India, Germany, America and France. Wherever she has been, Mrs. James has taken every opportunity to study the history and art of the country in which she was living.

Mrs. James now lives in a Georgian street in London where she is a qualified guide for the United Kingdom and a member of the British Guild of Guide Lecturers. She has lectured at the Victoria and Albert Museum in London, in Oxford and Glasgow, in other parts of the United Kingdom and in America.

Summerscenes: Ice Cream Social And

"A Little Night Music" brought thousands of visitors to the Garden for an evening's entertainment. At left, visitors gather on candle-lined pathway for candlelight tour of Tower Grove House; below, arriving guests are greeted by strolling musicians; right, colorful hot air balloon punctuates the evening like a seven-story exclamation point.

Little Night Music'

An old-fashioned Ice Cream Social, sponsored by Velvet Freeze, gave Garden visitors frosty relief from the summer heat and raised more than $500 for the Garden. At left, guests, balloons and the Climatron are mirrored in the lily pool; above, visitors enjoy barbershop quartet performance.

QUEENSLAND VISITOR – R. J. Henderson, left, a staff member of the Queensland Herbarium, Brisbane, tours the Garden herbarium with Dr. Gerrit Davidse of the Garden's botany department. Mr. Henderson was enroute to Kew, England, to assume a position as Australian Botanical Liaison Officer.

Library Receives Grant

The Garden's library has been awarded a major federal grant, from the U.S. Office of Education, to assist its recataloging program. The $200,000 award from the "Strengthening Research Library Resources" program will be utilized by the libraries of the Garden and the New York Botanical Garden to share their library cataloging records with one another and to accelerate the recataloging efforts of both libraries. Each library will enter its cataloging data into the national OCLC library data base, where these records will be immediately available for use by some 1,200 major research libraries around the nation.

The grant award is one of only 20 made to research libraries during the first year of the "Strengthening Research Library Resources" program.

The libraries of the Garden and the New York Botanical Garden are the two largest botanical garden libraries in the nation. Between them, their collections include more than 750,000 items relating to botany, horticulture and allied disciplines. Successful completions of the recataloging project for these two libraries will provide the nation's research community with detailed, accurate, and complete catalog records for the extensive book and journal collections of the two institutions. James Reed, the Garden's librarian, and Charles R. Long, administrative librarian at the New York Botanical Garden, are the project directors.

Camelot Support: One For The Book

October has become established in St. Louis tradition as the month for CAMELOT activities and for recognizing the tremendous impact that CAMELOT and its many volunteers have upon the artistic and cultural affairs of our community. The Garden joins many thousands of citizens in the St. Louis area in saluting CAMELOT and in extending its appreciation for the support of Garden programs.

In particular, the Garden is grateful for the financial support CAMELOT continues to provide in the effort to preserve treasures from the Garden library's rare book collections. In recent weeks, the bindery staff has completed a beautiful restoration on one of the prize sets in the Linnaean collection, Henry Andrews' *The Botanists' Repository.* This 10 volume set, published between 1797 and 1815, includes descriptions of more than 600 rare plants, with finely detailed hand-colored engravings of each.

Work is also being done on three volumes of J. A. Pollich's *Historia Plantarum* (Mannheim, 1776-1777) and on a 19 volume set of John Loudon's *Gardener's Magazine,* one of the most important 19th century gardening periodicals.

None of this work would have been made possible without CAMELOT's enthusiastic support.

CACTUS CUTTING – St. Louis Mayor James Conway cuts the ribbon to mark the official opening of the recent Henry Shaw Cactus Society Show in the Floral Display House.

Nicaragua: Land Of Botanical Mystery

The National Science Foundation has awarded the Garden a $41,000 grant to be used during the next two years to study the plants of Nicaragua, it was announced by Dr. Peter H. Raven, Garden director.

Nicaragua is the Central American republic with the largest land area, lowest population density and largest remaining area of natural vegetation.

But botanically, it is the least well-known.

Botanical collectors have seldom visited Nicaragua, and there are no written accounts of its plants. This is especially unfortunate because Nicaragua forms a bridge between the mountain floras of southern Mexico and Guatemala, which have North American affinities, and Costa Rica and western Panama, whose floras have greater South American representation. Nicaragua, like most of the rest of Latin America, is developing rapidly, and large areas of forest are being converted to agricultural land. If the flora of this country is not studied soon, a great deal of practical information will be lost.

With this in mind, the Garden in 1977 began an intensive study of Nicaraguan plants. This study will lead to a written flora in six to seven years. The project is being carried out in conjunction with the Banco Central de Nicaragua and Universidad Centroamericana and also involves the establishment of a national herbarium in Managua.

Since the initiation of the project, W. D. Stevens, the Garden's B. A. Krukoff Curator of Central American Botany, has lived in Nicaragua and carried out an extensive exploration effort. Although he has visited all major parts of the country, driving more than 20,000 miles and covering countless more miles by more primitive forms of transportation, and has collected more than 30,000 plant specimens, the surface has barely been scratched.

Recognizing the urgency of studying the Nicaraguan flora, the National Science Foundation recently awarded the Garden a two-year grant of $41,000 to help support the effort. This support significantly brightens the prospects for learning the secrets of the Central American forests while those forests still exist. It is also significant that the Nicaraguan government, using as justification information such as that gained by the Garden's work, is planning several national parks, including a 12,000 square kilometer reserve in the largest tract of pristine forest remaining in Central America.

The Garden's efforts, then, not only gather valuable information that will not be available in the coming centuries but may also be critical in preserving remnant fragments of tropical ecosystems.

PHOTO BENEFIT – Mr. and Mrs. Webe H. Naunheim discuss an exhibit of color photography taken on two African safaris by C. C. Johnson Spink, right, a member of the Garden Board of Trustees. Mr. Naunheim is president of the Charterbank of Ladue, where the exhibit was held. Sale of the photos was staged to benefit the Garden.

October is a busy month for the gardener. Use these cool days to clean up the garden, remove weeds. Also add to the compost pile by placing old compost over each new layer to introduce bacteria which will hasten decay. Water each layer well.

Late fall vegetables will add bounty to the dinner table. When vegetables have finished producing, remove the plants. Work organic matter into the soil. This work will reap added benefits next spring. Pile mulch on top of prepared soil. Early crops can be planted in February or March or as soon as the weather permits.

Insect and Disease Control

Continue to check regularly for insects. Aphids can often be a problem during cooler months. Check roses for mildew and black spot and control with a good fungicide such as Karathane at regular intervals.

Lawn Care

Lawns that were seeded early last month can be fertilized during the second or third week of this month using 12-12-12 fertilizer. Keep mowing at regular intervals setting the mower height to one and one-half to two inches.

If perennial weeds have been a problem in the lawn, apply a herbicide as long as areas were seeded early in September. Use 2-4-D with Silvex, applying as directed early in the morning when there is no wind to cause drifting to other areas. Seed thin areas after lightly working up the soil. Add a balanced fertilizer and rake the two in together; keep moist to insure good germination. Remove leaves as they fall, adding them to the compost pile.

Perennial Care

Perennial beds will benefit from an addition of organic matter. Most perennial plants can be cut back to within two to three inches of the ground and mulched if necessary.

Plant bulbs for spring while the ground is workable. For best results plant bulbs in masses. Work up the soil and plant bulbs to a depth of several inches.

Bulbs to be forced should be planted early this month. The largest sized bulbs will produce the best results. Choose daffodils, hyacinths, tulips and crocus. Plant in pots and place in cold frames or pits outside for the cooling period. Bulbs need eight to 10 weeks of temperatures about 40° to force.

In the Greenhouse

Thoroughly clean home greenhouses, check cooling and heating units, glass and remove shade. Clean plants and spray or fumigate while good ventilation can be maintained.

Seeds of hyacinth-flowered candytuft, *Calendula*, fibrous root begonias, larkspur, winter-flowering snapdragons, stocks, *Cineraria*, *Calceolaria* and *Salpiglossis* can be sown now to brighten the winter days.

Poinsettias for Christmas flowering should be covered with black cloth or plastic from 6 p.m. to 8 a.m. Other gift plants might include dish gardens and terrariums. There is still time to take cuttings. Root in a mixture of peat and perlite.

Planting Trees and Shrubs

Trees and shrubs can be planted as soon as they go dormant. Fall is an ideal time for such plantings because some root development will take place before the harsh weather descends. Evergreens can be planted as well. Be certain to prepare the soil well, mulch, and water when needed.

Take time to enjoy these lovely autumn days while preparing the garden for winter.

The Answerman Extension

Because the Answerman Program provides such a wealth of information to Garden members and the gardening population of the St. Louis area, this service has now formally been made a part of the Garden's education department.

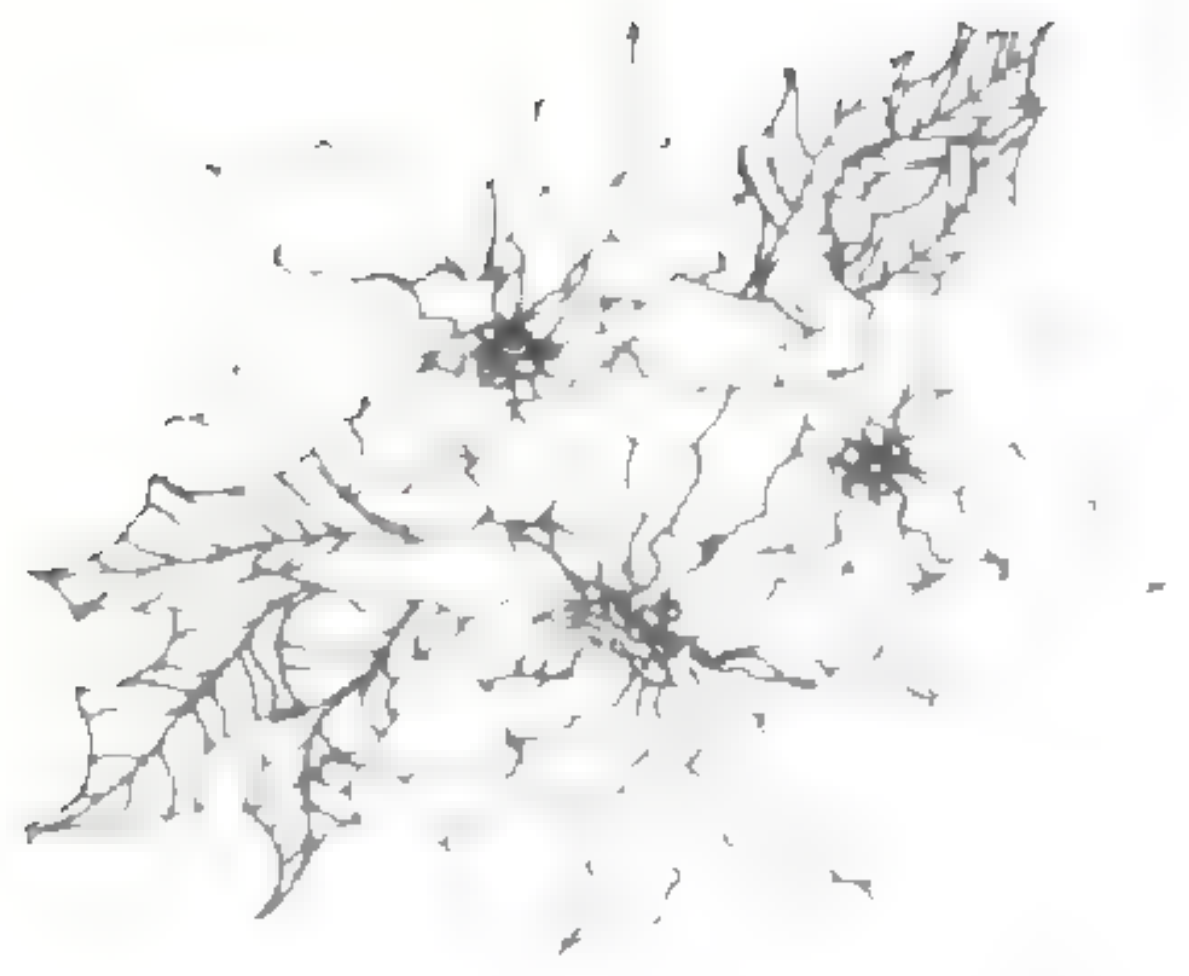
The service began when George Pring retired as superintendent of the Garden after 60 years of service and volunteered his mornings to answering questions. The number of queries began to increase and department heads were pressed into service. However, time demands made this arrangement infeasible. When Mr. Pring moved away in 1960, Florence Guth, presently secretary to Dr. Peter H. Raven, Garden director, suggested contacting the Men's Garden clubs. From this timely suggestion grew the present-day service.

Several of the original volunteers are still active. In 1970, Paul Kohl, who for 50 years designed, staged and grew plants for the Garden's seasonal shows, retired and joined the Answermen. He alone answers horticultural questions November through April while the Answermen are in training sessions.

Special seminars are held for the Answermen during the winter months to introduce new developments in horticulture. These sessions have taken place over the past four years and are taught by Garden personnel and extension specialists from the University of Missouri.

Presently, both men and women volunteer as Answermen and receive as many as 100 calls a day. More than 11,000 requests were recorded in the past year. The Answerman Service provides an educational extension that serves the horticultural community well.

Poinsettias: Gift of Life



The Plant Shop is offering a new holiday service this fall. Multiple stemmed poinsettias in six-inch pots may be ordered as holiday gifts by mail. Send order with a check for $9.00 for each plant to the Plant Shop before November 30. Please include an enclosure card or give instructions for such a card. The plants will be delivered between December 1 and 15. Deliveries will be made in St. Louis and St. Louis County only.

Make your shopping easier this year by ordering your gift by mail. Gift certificates are also available for all gift occasions. Visit the shop soon.

Library Notes

Several new titles recently added to the Garden's library promise to be of interest to our membership:

1. Veninga, Louise and Benjamin R. Zaricor. *Goldenseal/etc.* Santa Cruz, Ruka Publications, 1976. 193 p. Goldenseal *(Hydrastis Canadensis L.)* has a long tradition of use as an "all-purpose" medicinal plant throughout much of the Northeastern and Central U.S. and extending into Missouri's Ozarks. The authors review the plant's history, medicinal uses, and cultivation fairly extensively, and devote the remainder of the book to briefer treatments of the medicinal characteristics and commercial value of some 25 other fairly common wild plants, including many that are native to Missouri.

2. Marsden-Smedley, Hester. *The Chelsea Flower Show.* London, Constable, 1976. 153 p. A well-written and entertaining history of the Chelsea Flower Show and its antecedents.

3. Gerber, Frederick H. *Indigo and the Antiquity of Dyeing.* Ormond Beach, Fla., published by the author, 1977. x, 59 p. This book is *not* a practical handbook on dyeing fabrics with plant material, but an anthropological and historical essay on the relationship between the ancient art of textile dyeing and the evolution of human culture. Those readers interested in more practical advice on the how-to-do-it aspects of dyeing are referred to a series of excellent articles by Gerber in the magazine *Handweaver and Craftsman,* 1968-1972.

4. Genders, Roy. *Scented Flora of the World.* N.Y., St. Martin's Press, 560 p. For the serious gardener, Genders has compiled an encyclopedic treatment on scented flowers and leaves, aromatic barks, and scented fruits, wood and roots. After a brief survey of the history of scented plants, their classification, and their use in perfumes, the author devotes almost 400 pages to an alphabetical listing of both common and unusual fragrant plants.

All of these books are available in the library for members to borrow for a two-week period.

Garden Gate Christmas Show

Circle November 1 and 2 for the annual Garden Gate Shop Christmas Open House. The hours will be from 10 a.m. to 8 p.m. on both days.

All the new items will be on display. They were purchased on the buyers most recent trip to New York. The theme of this year's Open House is Candyland. Many new gift items will be featured. Please join us for your early Christmas shopping.

Calendar of Events

Continuing thru Oct. 15	"Living Stones of South Africa," Desert House, 9 a.m.-5 p.m.
October 7-8	East Central District Flower Show, Floral Display House, Oct. 7, 2-5 p.m. Oct. 8, 9 a.m.-4 p.m.
October 28- November 26	Fall Chrysanthemum Show, Floral Display House Oct. 28-31, 9 a.m.-5 p.m.; Nov. 1-26, 9 a.m.-4:30 p.m.
November 1-2	Garden Gate Shop Annual Christmas Open House 10 a.m.-8 p.m.

Fall Lecture Series

Members and their guests are invited to attend the following lectures featuring botanical research, which are a continuation of the Garden's Fall Series. Each lecture is presented at 10:30 a.m. and 8:00 p.m. in the John S. Lehmann Building Auditorium.

October 4	Life in a Tropical Forest Dr. Thomas Croat
October 11	Habitat and Diet of the Mountain Gorilla Dr. Marshall Crosby
October 18	Poppies and Politics Dr. Peter Goldblatt
October 25	Missouri Wildflowers Erna Eisendrath
November 1	Mushrooms and Other Fungi Dr. James Maniotis
November 8	Protecting Missouri's Endangered Species John Wylie

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Reminders

The **Acclimatization Workshop** will be offered October 27-29 by the education department. Steve Van Matre, Acclimatization author and educator and director of the Acclimatization Experiences Institute in Downers Grove, Ill., will instruct the course. For additional information, contact the education department at 772-7600.

Members who have not received the brochure on the Hawaii tour, have been asked to call 772-7600, Ext. 25. The tour, scheduled for February 7-20, includes five islands with an exciting itinerary.

MEMBERSHIP — AUGUST 1978

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Mr./Mrs. Howard F. Baer
Mr./Mrs. Joseph H. Bascom
Mr. Watson K. Blair
Mrs. Watson K. Blair
Mr./Mrs. G. A. Buder, Jr.
Mr./Mrs. Sam'l C. Davis
Mr./Mrs. Guy W. Fiske, Jr.
Mr. James H. Howe, III
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Mrs. Irene C. Jones
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Mrs. John S. Lehmann
Mrs. Florence T. Morris
Mr./Mrs. W. R. Orthwein, Jr.
Mrs. Howard E. Ridgway
Mr./Mrs. Frederic M. Robinson
Mrs. Gladney Ross
Mr. S. C. Sachs
Mr./Mrs. Daniel L. Schlafly
Mr./Mrs. Warren M. Shapleigh
Mr./Mrs. Sydney Shoenberg, Jr.
Mrs. Tom K. Smith, Sr.
Mr./Mrs. Tom K. Smith, Jr.
Mr./Mrs. C. C. Johnson Spink
Mrs. Hermann F. Spoehrer
Mr. Jack L. Turner
Mrs. Ben H. Wells
Mr./Mrs. Richard K. Weil

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Mr./Mrs. David C. Farrell
Mr./Mrs. Henry Hitchcock
Mr./Mrs. August Homeyer
Mr./Mrs. A. Timon Primm, III
Mr./Mrs. Robert A. Ridgway
Mrs. Mason Scudder
Miss Harriet J. Tatman
Mr./Mrs. Harold E. Thayer
Mr./Mrs. Andrew R. Zinsmeyer

INCREASE IN MEMBERSHIPS — AUGUST 1978

SUSTAINING

Mr./Mrs. Carl B. Merollis
Dr./Mrs. William C. Hummel

CONTRIBUTING

Mr./Mrs. R. O. Bowlin, III
Mrs. Walter F. Brissenden
Dr Thomas J. Cooper
Mr./Mrs. Myron Jaffe
Mr./Mrs. John D. Leng
Dr./Mrs. Thomas F. Maher
Mr./Mrs. Robert E. McGlynn

NEW MEMBERSHIPS

CONTRIBUTING

Drs. Dan and Susan Luedke
Dr./Mrs. John Sopuch

REGULAR

Miss Louise Ackley
Ms. P A. Austin
Mr./Mrs. William G. Barr
Dr. Lois I. Bartels
Mr./Mrs. Stephen V. Becker
Mrs. William H. Best, Jr.
Mr./Mrs. Donald R. Bowers
Deborah Bozsa
Mr./Mrs. James Coe
Mr./Mrs. Robert E. Cox
Mr./Mrs. Mickey R. Cunningham
Mr. Lee Darrah
Mr./Mrs. R. D. Davidson
Mr./Mrs. Glenn Delf
Mr./Mrs. William Diamond
Ms. Betsey Douglass
Mr./Mrs. Glennon M. Dummerth
Mrs. Mildred I. Dunn
Mrs. Alice H. Enders
Mr./Mrs. Robert Enders
Mr./Mrs. Dale J. Ewalt
Mr./Mrs. Holger Frederickson
Mrs. Dolores J. Frintrop
Mr./Mrs. Robert J. Gass
Mr./Mrs. Floyd W. Graves
Miss Martha R. Greer
Mr./Mrs. Charles J. Hertich
Mr./Mrs. James L. Hester
Mr./Mrs. Dale W. Hilpbert
Mr. Mrs. Patrick Hobson
Dr./Mrs. Carl S. Ingher
Mr./Mrs. Norman Janson
Mr./Mrs. Paul B. Junius
Mr./Mrs. Jordan Kaiser
Mr./Mrs. J. R. Kirby
Ms. Katya Kopp
Miss Magdalen M. Lampe
Mr./Mrs. Robert A. Lang
Miss Jane Larson
Mr. Theron Lorimor
Mr. Jack MacDonough
Miss Jane Mahon
Dr. Ann Mazur
Mrs. Sandra McFadin
Sister Marian McNicholas
Ms. Christine R. Miller
Mr./Mrs. Ed M. Milner
Mr./Mrs. Robert J. Mosby
Mrs. Stephen Mueller
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Mr./Mrs. Minter R. Parker
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Mr./Mrs. Theodore A. Weber
Mr./Mrs. Gordon M. Wiegand
Mrs. Gilda B. Williams
Mr./Mrs. Art Young
Mr./Mrs. Thomas Zacher

AUGUST TRIBUTES

In Honor of Mrs. Milton Greenfield, Jr.'s Birthday
Mr./Mrs. Leon Bodenheimer

In Honor of Mr. and Mrs. Thomas C. Hendricks' 50th Anniversary
Mr./Mrs. Bruce R. Yoder

In Honor of Mr. Sidney Mather Skinner's 90th Birthday
Margaret and Lemoine Skinner, Jr.

In Honor of the Tribute Fund
Dorothy Hennicke

In Memory of Mr. Fred Becker
Grow & Show Garden Club

In Memory of Leta C. Bulla
Mr./Mrs. W. J. Freschi

In Memory of Miss Edna Campbell
Mrs. Roy McCormack

In Memory of Mrs. Jane Fausck
William M. Livingston

In Memory of Mrs. Merle Faut
Mrs. Theodore C. Eggers
Mr./Mrs. Jack E. Krueger
Mrs. Norman Schaumburg

In Memory of Mrs. Mary Hemker
Mr./Mrs. E. J. Costigan

In Memory of Husband
Vera M. Johanning

In Memory of Ada Smith Lee
Mrs. Dwight W. Coultas

In Memory of Elvira Lindenmann
Mr./Mrs. Richard C. Palm

In Memory of Mrs. K. A. (Nonie) Morie
Mr./Mrs. Phil S. Chew

In Memory of Mrs. Mae Prange
Mrs. Douglas Newman

In Memory of Mrs. Henry Schiller
The Alexander Bakewells

In Memory of Rita Silversmith
Morton and Norma Singer

In Memory of Mrs. Charles C. Spink, Sr.
C. C. Johnson Spink

In Memory of Richard P. Wichman
Bill and Ginny Hayman

MISSOURI BOTANICAL GARDEN BULLETIN
2345 Tower Grove Avenue
Saint Louis, Missouri 63110

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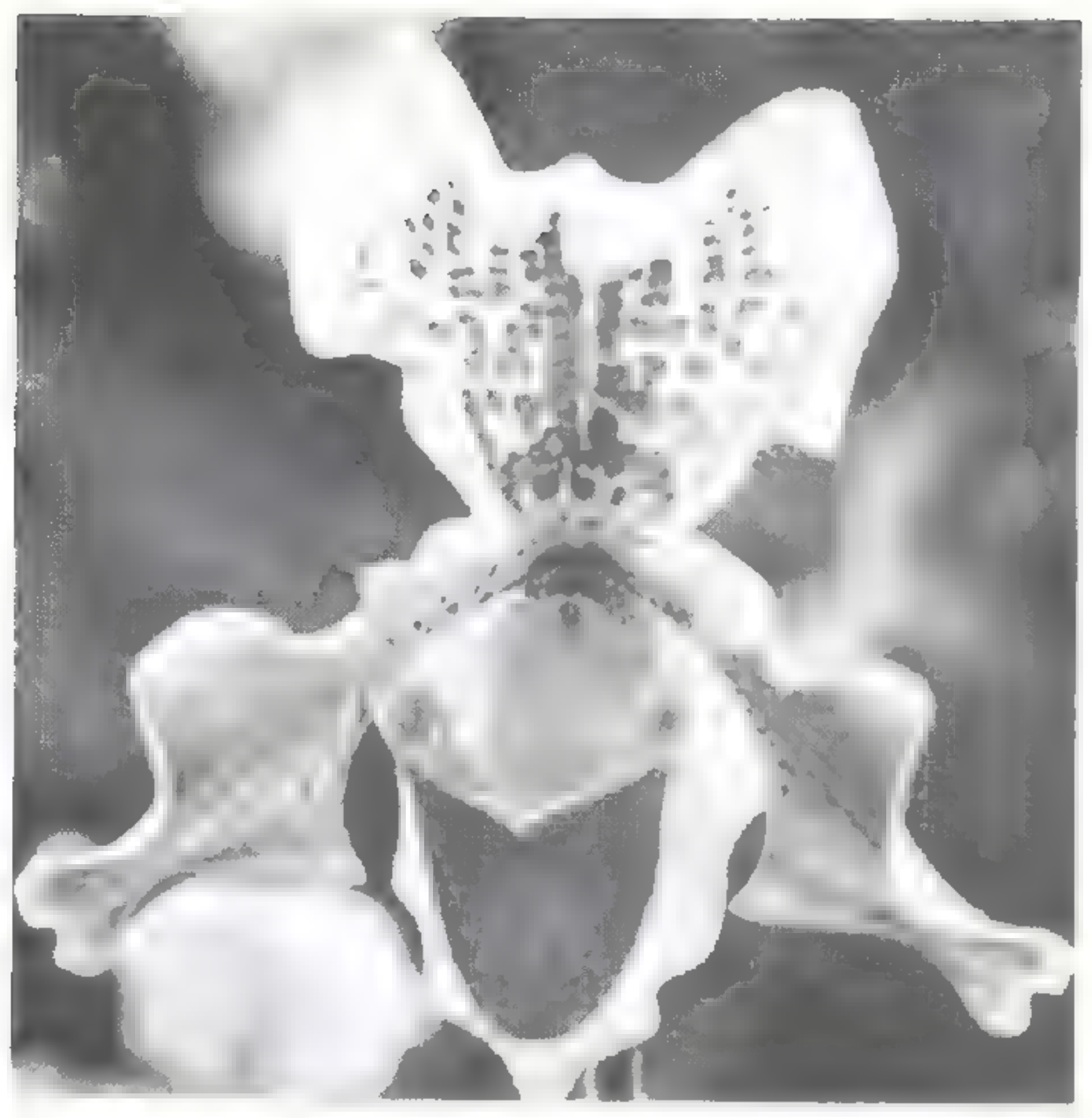
Missouri Botanical Garden Bulletin



Orchid in Autumn — Climatron Tour, Page 3

Kresge Grant Is Garden Challenge

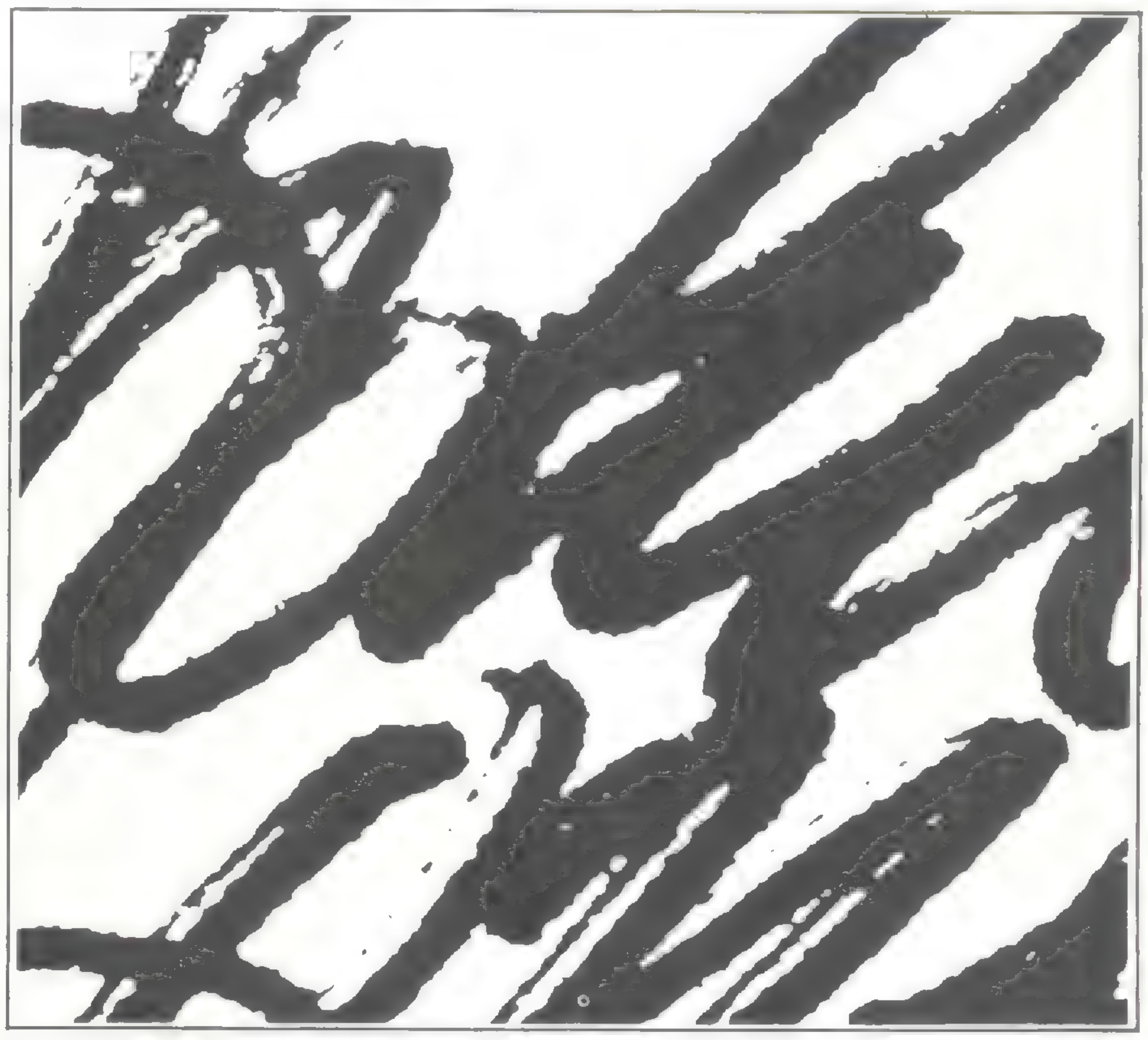
The Kresge Foundation of Troy, Michigan, has awarded a challenge grant to the Garden to assist in the construction of the new Education/Visitor Orientation Center. The Kresge gift, $250,000, is conditional upon successful completion of the Garden's $6 million fund raising campaign. At least an additional half million dollars needs to be raised, according to Arthur M. Dye, Jr., assistant director, who heads the Garden's fund raising activities.

Sebastian S. Kresge created the Kresge Foundation in 1924. Since its founding it has appropriated funds in areas of higher education, health services, the arts, social welfare, and the care of the young and old. Generally, the grants have been for construction or major renovation of facilities and almost always they have required the raising of additional money on a challenge basis.

Most of the $6 million from the Campaign will be used to construct the Education/Visitor Orientation Center, which will provide more space for educational activities and better facilities for visitors' orientation. Additional parking for visitors will also be provided, and new maintenance and greenhouse facilities will be constructed. Work has already begun on the maintenance facilities.

In a related development, Mrs. Nora Stern, president of the Executive Board of Members, has designated the Education Laboratory Workroom in the new facility as a special Members' project. Members are being asked to contribute toward a $135,000 goal to cover the cost of the workroom, where educational programs which involve working with plants and soil will take place.

"It is an exciting project for us," Mrs. Stern said, "and we are strongly committed to educating young people of the St. Louis area — to introduce them to the thrill of growing seeds and plants themselves. Hands-on practical experience is the best way to do this."



Wall graphic, sample above, developed by designer Ed Bydalek, will depict botanical arrangement formed from the signatures of donors to the special Members' project. It will hang in the workroom of the new Education/Visitor Orientation center.

Mrs. Stern also said that designer Ed Bydalek has been selected to prepare a wall design to honor members who contribute to the project. Each member who contributes $25 or more will be asked to send his or her signature to Bydalek, who will create a graphic from the signatures. The graphic, probably a wall hanging, will be used to decorate the workroom. The overall effect will be a plant and each member will be able to find his or her individual name in the design. The graphic will also be reproduced in a limited edition poster form for members who contribute $250 or more.

Robert R. Hermann has served as chairman of the campaign. Assisting as heads of the major divisions are Clarence C. Barksdale, A. Timon Primm III, William R. Orthwein, Jr., and Warren M. Shapleigh.

Volume LXVI Number 11
November 1978

missouri arts council

$40,000 Allocation From Missouri Arts Council

The Missouri Arts Council has allocated $40,000 to the Garden for the period of July 1, 1978, to June 30, 1979, it was announced by Peter H. Raven, Garden director.

The funding is being applied primarily to the design of the exhibits and exhibit spaces for the new Education/Visitor Orientation Center. This area will constitute approximately 11,000 square feet. The exhibits and displays will help the Garden's more than 400,000 annual visitors to understand, interpret and benefit from the numerous Garden features. Many educational themes will be developed to translate the extensive research and collecting activities of the staff into meaningful displays and programs.

The firm of Deborah Sussman and Co., Graphics Plus of Santa Monica, California, has been retained to work on these exhibit areas. This is a firm that has worked closely with Charles Eames and Associates on many projects. Paul Prejza of that firm has visited the Garden and is already involved in innovative design concepts.

Missouri Arts Council funding makes possible many meaningful interpretive displays throughout the year.

Girl Scout Tree Exhibit

A display of Christmas trees representative of countries throughout the world will be on view in the Floral Display House from Sunday, December 3, through Friday, December 29. The trees will be decorated by the Girl Scouts of Greater St. Louis as a special project.

Answerman Seminars

The 1978-1979 Answerman Training Seminar will begin on Monday, November 6. Meetings are held from 1 to 3 p.m. in the John S. Lehmann Building auditorium. Persons interested in becoming a part of the Answerman Service should call the Education Department, 772-7600, for seminar dates and service commitment.

Gate Shop Offers Mail Service

The Garden Gate Shop will offer holiday shoppers a new service this year. Gifts will be delivered in town and mailed out of town. A fee of $2.50 per gift will cover gift wrapping and delivery.

Make this holiday season more pleasant — stop in the shop soon and make your selections.

Garden Among 256 IMS Grantees

The Institute of Museum Services, a recently created federal agency within the Department of Health, Education and Welfare, has announced its first year's awards of $3.7 million to 256 museums and cultural institutions in the United States.

The Garden received $25,000 and as such is one of five such recipients in the state of Missouri. Applicants included art museums, children's museums, botanical gardens, historical museums, museums of natural history, nature centers, planetaria, science museums, zoological parks, aquaria and general specialized museums.

Funds for the awards were made possible through the Museum Services Act, Title II of the Arts, Humanities and Cultural Affairs Act of 1976.

The establishment of the Institute is a demonstration of the important shift of the federal government's commitment to museums. In addition, the fact that botanical gardens are included in the museum category is even more significant. The Museum Services Act specifically included these kinds of institutions in its definition because many such institutions had no other source of federal funding prior to the establishment of the Institute.

Dr. Peter H. Raven, Garden director, is a member of the National Museum Services Board. He is the only botanical garden representative named to the board by President Carter last December.

Tower Grove House To Be 'Spruced' Up Dec. 12

'Twill be the season to be jolly and on December 12, Tower Grove House will be decorated with fresh, live greens, a tree with all the trimmings, and all the lovely sights and smells of an old-fashioned Christmas. There will be jars of potpourri, Christmas scent bags and Christmas cards for sale. Spicy gingerbread men cookies will be baked in the house Christmas week and will also be for sale. Come to Tower Grove House and join in the spirit of Christmas.

The tearoom will be open as usual during December until Christmas and will be closed Christmas week.

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Mo 63110. Second class postage paid at St. Louis, Mo. $5.00 per year $6.00 foreign

The Climatron In Autumn: A Tropical Excursion

Fall is weather time, when cool shadows remind us of Keats' lines: "Season of mists and mellow fruitfulness, Close bosom friend of the maturing sun."

More and more of our thoughts at this season are devoted to indoor comforts. Those entering the main gate of the Garden, while admiring the outdoor floral displays, cast a more meaningful look (than would be the case in spring and summer) in the direction of the Climatron and the Mediterranean House. The intriguing and glamorous plants under glass are for the most part year-round fixtures, protected from the rude intrusions of our cool climate.

As we walk toward the Climatron, passing the lily pools, the photogenic red and purple waterlilies attract the eye like magnets. These are hybrids, most of them having been bred by the late George Pring. Luxuriating in pools throughout the world, these products of the Garden are reminders of the science of plant breeding, an integral part of the program of most botanical gardens.

Stepping into the Climatron is one of the great thrills offered in the city of St. Louis. Here it is possible to see more variety of tropical and subtropical exotic plants in one hour than one could possibly see in a couple of days of strenuous field work in the tropics.

At the main door of the Climatron there is usually an eye-catching array of orchids! The majority are *Cattleya,* native in tropical America, with sleek swollen pseudobulbs and usually fuschia-colored blossoms. They and the other orchids accompanying them are an open invitation to the camera enthusiast. They are like stars trapped in the jungle trees, not living "with their feet on the ground," so to speak, but utilizing other plants for support. As epiphytes, they rest here on the wiry roots of osmunda fern tied to a tree.

To the right, at the Climatron's entrance, is a tree called "Carambola," commemorating the Arabic philosopher and physician, Averroes. From its branches hang yellow waxy fruits, prominently ridged, reminding us of a deflated football. Equally interesting are the little clusters of magenta flowers. If one reflects on the structure of the *Oxalis* blossom so common in woodlands and often in our lawns, one realizes that the blossoms of *Carambola* are almost the exact counterparts. The two belong to the same plant family and illustrate what wide range in size is found in many plant families.

Diagonally across from the *Carambola* is the exotic strangler fig, from the jungles of India, whose trunk is somewhat hidden by the long ropelike stems of *Philodendron.* A closer look at the fig reveals the slender roots which seem to hang like weak, distorted, lifeless arms from the lofty branches. These strangely positioned roots are responsible for the term "strangler," for they, with imperceptible slowness, wrap themselves around neighboring trees and shrubs. This strangler effect has prompted several imaginative writers to describe the work of the roots in lurid fashion, as if reaching out to ensnare unsuspecting humans passing through the jungle.

Fancy foliage and flowers, part of the tropical splendor of the Climatron.

Immediately behind the orchid display is a shrub almost head high. This is *Psychotria punctata,* whose leaves are replete with little bumps or punctations. At least in juvenile leaves these swellings contain microscopic bacteria living along in mutual harmony with the protoplasm of the leaf. Strange bedfellows perhaps, but no more strange than the fact that bacteria luxuriate naturally in our digestive tract, helping us in our metabolic struggle.

Towering over the *Psychotria* shrub is another species of fig, with tips drawn like a needle. In the rainforest the almost ceaseless waters run off the blade, treading this narrow causeway, descriptively referred to as a "drip tip."

In this area is an array of cycads, slow growing plants with rigid wax-covered leaves that spread like

(Continued on Page 4)

those of palms. From the heart of the whorled leaf bases arise, in season, heads or cones unlike any structure found in the palms. Like the ginkgo, they are living fossils, with nine genera and less than 200 species in the tropics and subtropics of the world. Here, at this very spot, the Garden has seven of the nine genera alive. This is one of the few places in the United States where specialists may study this exotic group effectively. One specimen of *Zamia* looks like a palm tree and is hundreds of years old. By counting the scars on the trunk, left by fallen leaves, and counting the persistent leaves and dividing this latter number by two, then multiplying this number by the total of the leaf scars, one can ascertain the approximate age of the tree.

Walking ahead to the portico one observes the beautiful bird's nest fern, the epiphytic staghorn fern, and as one swings around to the right to descend the stairs, a banana tree which in season bears live stalks of the fruit. At the foot of the steps is the Hong Kong orchid tree, which in reality is not an orchid, as orchids never attain tree size. The misnomer arises from the fancied resemblance of the flowers to an orchid. The tree is a member of the legume family as its pods would suggest. The leaves are fascinating, being made up of two leaflets partially yolked. Carl Linnaeus, the 18th century physician and systematist par excellence, on seeing the leaves, seized the opportunity to commemorate two herbalists of the previous century, the Bauhin brothers. Thus the genus name is *Bauhinia*. Linnaeus' romantic strain has immortalized the filial devotion of the two brothers.

Botanists frequently name plants after people. Standing in front of the Hong Kong orchid tree we see the shrub *Hamelia* with its orange flowers, named after H. Du Hamel, a Frenchman; the well-known *Gardenia*, commemorating Alexander Garden, an 18th century Charleston, S.C., physician; *Plumieria* (the frangipani tree), named after the French botanist C. Plumier; *Bougainvillea*, the vine with spectacular flowers, reminding us of the French navigator, de Bougainville, who explored much of the South Pacific.

As far as flowering on a year-round basis, of all the shrubs in the Climatron there is none more reliable than the hibiscus. Looking head on into the heart of its blossom, we see its relationship with the hollyhock and abutilon. The flowers of all three have a central fingerlike column; these are the sex organs, the male a fringe of small pollen-producing sacs; the female, only partially in evidence, as five dwarf-fingered stigmas hovering over the pollen sacs in anticipation of mating.

There is so much to see: the Climatron's lake, the waterfall, the bromeliads, the underwater tunnel, the simulated rice paddy, the bamboo grove, the eucalyptus tree, the macadamia nut tree competing with the sleek Norfolk pine!

A favorite walk of many visiting the Climatron is along "economic row" which may be seen by veering sharp right at the main entrance of the Climatron. First in sight is the pineapple plant, which at times has the familiar fruit burgeoning from a rosette of fleshy leaves. Nearby are several papaya trees whose large fruits in season hang like yellow footballs from the fleshy trunks. The fruits are a delight to the palate; their juices are used to tenderize steaks. Papaya's potential in medicine and in industry is being explored with intensity. A few steps farther and voilà, the shrub of lemon, its deep green glossy aromatic leaves and white flowers, the counterparts of orange blossoms, weighed down by turgid fruits! Beside the lemon shrub is one of the princes of the cash crops, the coffee plant which brings to mind the great coffee plantations of tropical America and Africa.

In a sense, the Climatron and the Mediterranean House bespeak the language of botany without concern for international boundaries or for time itself. The plant lore enmeshed in their vegetation defies the ability of any pen. The beauty at every turn speaks for itself!

— John D. Dwyer

A GARDEN WELCOME — A new face can be seen around the Garden these days. Nancy Speed, a teacher in the St. Louis Public School System, has been assigned to work with the Garden staff to teach our regular program offerings and develop new ones. This offers the opportunity to expand the interpretive programs and to reach a wide audience in the school system. It is a pleasure to extend a Garden welcome to Nancy Speed.

Dr. George T. Moore, A Portrait In Memoriam

A portrait of Dr. George T. Moore, former Garden director, now graces the lobby of the administration building. The plaque beneath the portrait, a gift from his family, reads as follows:

In recognition
Dr. George T. Moore
His foresight and untiring effort brought
The Missouri Botanical Garden
to its proper place among
the Botanical Gardens of the world
Director: 1912 to 1953
Director Emeritus: 1953 to 1956

Dr. Moore came to St. Louis in 1909 at the age of 38, already an accomplished educator and scientist, and joined the Garden staff under then Director William Trelease. His scientific discipline, algology, led him to an effective method of control of algae and certain pathogenic bacteria in water supplies. As a public spirited citizen of St. Louis, Dr. Moore was known for his civic involvement, as a skillful administrator and witty master of ceremonies. The field of research in which Dr. Moore was active made it natural for his involvement at the Marine Biological Research Station in Wood's Hole, Massachusetts. He taught and trained many of the country's top biologists and was instrumental in the growth of that institution. During the 20s and 30s he maintained a summer home there. In St. Louis, Dr. Moore taught both graduate and undergraduate courses in the Henry Shaw School of Botany. His career as a teacher was a distinguished one.

In 1912, he was made Garden director. As such, Dr. Moore had to face rising operating costs — particularly those of labor. Redesign efforts were undertaken throughout the Garden. Inefficient greenhouses were replaced, elaborate flowerbeds were eliminated or simplified. The staff was expanded by the addition of world renowned scientists, and fellowships for graduate students. The herbarium was expanded. The Arboretum in Gray Summit was purchased and greenhouses built.

Dr. George T. Moore

The last half of his directorship was concerned mainly with the attempt to increase the endowment necessary to keep the Garden on the course charted by Henry Shaw. He continued to reduce labor consuming flower beds.

To those who knew him well, Dr. Moore was generous and warm hearted. Though his outward demeanor was one of reserve, there was always a twinkle in his eye.

The distinguished portrait is a reminder of the devotion and service of a great man and director. George T. Moore added dimension to the legacy of Henry Shaw for all who were to follow.

HARVEST SHOW WINNER – Bonsai, blue ribbon winner during the recent Harvest Show at the Garden, hosted by the Greater St. Louis District, Men's Garden Clubs of America.

Gardening in St. Louis

Days grow shorter, nights cooler and with thoughts of last year's severe winter still in mind, the gardener must prepare for another.

Maintenance chores should be continued throughout the month. Leaves, when raked off the lawn, can be added to the growing compost pile. Continue to keep the lawn mowed as long as the grass is still growing.

If plants have not been mulched previously, now is the time to complete this task. Apply to the depth of four to six inches out to the drip line on established plants, but further on new plantings. Plants that are suspectible to winter burn should be protected. Insert sturdy stakes into the ground near branch tips. Wrap burlap around stakes, leaving a six-inch space between the bottom of the burlap and the ground, to just over the top and fasten securely. The burlap barrier will protect tender plants such as boxwoods from the winter sun and wind, but still allow air to circulate.

Check all plants that are staked to be certain that stakes and ties are secure. On plants that have been staked for awhile, check to be sure that ties are not too tight. In staking newly planted specimens, select soft material or hose to cover the wire. This will prevent damage to the bark.

Fall Bulbs

Fall bulbs should be in the ground by now. If the planting is not complete, do so as quickly as possible. Bulbs will not flower properly next spring if time is not sufficient for some root growth.

House Plants

Continue to check house plants to make certain insects are under control. Spraying can still be accomplished outside on warm days. Days are becoming shorter so less water will be needed. Only flowering plants should be fertilized to keep them in good condition. Growth slows down for foliage plants and should have a normal rest period.

Winterizing Roses

The best winter protection for roses is to hill each bush with six to eight inches of good top soil, mixed with equal parts of organic matter or compost. Later add two to three inches of wood chips.

Do not prune bushes until spring. If there are some long canes that may break in the wind, cut those back. Those roses that are not pruned until spring will have a better survival rate.

Fertilizing

Superphosphate and organic matter can be worked into the vegetable garden if not accomplished last month. Leave the soil rough dug as the action of freezing, thawing, wind, rain, snow will break the soil to a better tilth. Shrubs and trees will also benefit from a light application of superphosphate. Trees and shrubs can be fertilized with a balanced fertilizer into late November if root fed. Trees are most effectively fed by digging a series of holes out to the drip line — 18 inches apart, 10-12 inches deep. Add balanced fertilizer to each hole leaving open for air and moisture. As the fertilizer breaks down the roots will continue to absorb it until the soil freezes.

Home Greenhouse Care

Continue greenhouse maintenance chores in preparation for colder weather. Check for insects and disease while there is time to spray and fumigate and air out the house on warm days. Watch temperature fluctuations and ventilation, since shading has been removed. Night temperatures of 50-55 degrees will save on heating bills and keep plants in good condition. It may be advisable to cover the north wall of the greenhouse with plastic, leaving a two-inch air space as an insulating barrier.

Watch watering and don't fertilize unless plants are actually growing and then only lightly. Check supplies of potting media while they can still be obtained. Store media, insecticides and fungicides where they will not freeze.

Working days in the garden can be ended before a blazing fire in the fireplace — one of the dividends of late autumn and winter.

Members On The Move

The following tours are scheduled for the beginning of 1979. Members should contact the Members' Office for further information. Mark your calendars now for the trip of your choice.

Hawaii:	February 7-20. A Tauck Tour including Oahu and the neighbor islands. $1,660 per person based on double occupancy.
Desert Tour:	March 24-31. Explore the deserts of Arizona and New Mexico during this peak flowering season. Personally escorted by Ken Peck, manager of instructional services at the Garden.
Virginia:	April 24-29. An exciting trip to Virginia during Garden Week featuring Williamsburg, Charlottesville and many historic houses and gardens along the way.

Member of
The Arts and Education
Fund of Greater St. Louis

Linnaean House Restoration Funded Through Federal Grant

State Sen. John Scott and Rep. Russell Egan have announced the grant of $50,000 of federal matching monies for the restoration of the Linnaean House. These funds, administered through the Missouri Department of Natural Resources, Office of Historic Preservation, will greatly assist in the restoration project, expected to cost $150,000.

The goal of the restoration is to return the Linnaean House to its circa 1900 condition. Built by Henry Shaw in 1882, this greenhouse is the oldest continuously operating greenhouse west of the Mississippi and one of the oldest in the nation. Early in this century, severe storms caused heavy damage to the Linnaean House.

Through the firm of Kramer and Harms, St. Louis architects, the building will be meticulously restored. The roof will again be slate and concealed windows reopened. An ornamental iron crest and the copper sheathing which adorned the roof and parapets will be replaced.

The house was named by Shaw in honor of the great Swedish naturalist, Carl Linnaeus, the father of modern botany. In early days the house was used as an orangery, a place to house plants which could not tolerate frost for the winter. For the past several decades, this greenhouse has been graced by the Garden's camellia collection, providing bright splashes of color during dreary February.

"With its prominent location near the Garden's proposed new entrance, the Linnaean House will become a focal point for the hundreds of thousands of visitors to the Garden each year, and it is exciting to see the restoration project underway," said Senator Scott.

A NIGHT FOR SWEDEN – Tom K. Smith, Jr., right, president of the Garden Board of Trustees, and Philip Graham, president of the Swedish Council of St. Louis, discuss program items during the recent dinner banquet held in honor of Carl Linnaeus, Swedish scientist and the father of modern botany. A special guest at the banquet was Tore Hogstedt, Swedish consul general from Chicago.

Continuing Members Lecture Series

Wednesday, November 1	Mushrooms and Other Fungi, James Maniotis, Associate Professor of Biology, Washington University
Monday, November 6	The Tulip, Peacock of Flowers, Nina James, Member, British Guild of Guide Lecturers
Wednesday, November 8	Protecting Missouri's Endangered Species, John Wylie, Missouri Department of Conservation

All lectures will be presented in the auditorium of the John S. Lehmann Building at 10:30 a.m. and 8:00 p.m.

Calendar

thru Nov. 26	Chrysanthemum Show Floral Display House 9 a.m.-4:30 p.m.
Nov. 18-26	"Food Plants of Tropical Lands" Climatron, Desert House, Mediterranean House 10 a.m.-4:30 p.m.

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2345 Tower Grove Avenue
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Missouri Botanical Garden Bulletin

Christmas, an elfin experience; for other gift ideas, see Pages 6-7.

The Garden's Future — Reaching Out To People

Sometime in 1981, the doors of the "Crystal Palace" will open to the citizenry of St. Louis. In plan and concept, the new facility will be an exciting blend of new and modern design techniques and the treasured traditions of Shaw's time.

This building and the related construction at the north end of the Garden are the culmination of the 1973 master plan. The plan was commissioned by Dr. Peter Raven shortly after he became director in 1971. The primary goal of the Garden at that time and today is to make the Garden the world's finest hrough outstanding educational and research programs within the framework of a beautiful garden setting.

The initial goals focused upon the setting — moving people from the main axis of the Garden, main gate-Climatron, by creating additional areas of nterest, circulating people, enticing visitors to explore. With this in mind, the English Woodland Garden and Japanese Garden were designed and developed, and fountains and sculpture were strategically placed to add interest. So the first phases of the plan are near completion.

As research programs continue behind the mirrored facade of the John S. Lehmann building and throughout the tropical areas of the world, attention has now been turned to the expansion of existing educational programs.

Environmental Planning and Design of Pittsburgh, the firm commissioned to develop the master plan, has been working closely with Gyo Obata, "Crystal Palace" designer, to coordinate the new facility with the surrounding area. As the buildng moves into the final design stages, the design schemes for the surrounding gardens, courtyards, plazas and parking proceed at an equal pace.

All of this development will take place in an area of the Garden previously not open to the public. The central vault of the education facility will be aligned with the new entrance from Shaw Avenue. The adjacent parking will provide secure, easy access by day or night. Night lighting will provide safe entry and exit for evening classes and lectures. The parking area will be screened from the street and from the rest of the Garden.

Entering the doors of the vaulted "Crystal Palace" will place the visitor at the northern extremity of the Garden. There, after assimilating the interpretive material on display, the visitor will emerge to the panorama of the entire Garden.

The central courtyard will focus on a fountain at the base of a series of steps. From the courtyard the eye will travel to the restored Linnaean House. The surrounding garden will present a range of colors and textures — a complete experience of a garden within a garden. Aspects of the entire Garden will be presented here to give the visitor the complete garden experience while whetting the appetite to search and explore all the other parts.

The Rose Garden will remain. One will be drawn from one area of interest to another — enclosed areas, hedges, cloister effects. A covered walkway from the new building to the Climatron will be constructed so that during inclement weather visitors may move from one building to the other. This entrance garden will contain garden courts, will stress the fact that the Garden is a garden for all seasons, will incorporate fountains and sculpture. The important point to stress is that the Garden will be enriching the existing traditions. The building will be new, some of the entrance garden will be restructured, redesigned, but the trees will remain and perhaps be appreciated even more.

The plans and the development will strengthen the ties between Garden traditions and history, be-

(Continued on Page 4, Column Two)

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December 1978

MUM PREVIEW – Garden Members enjoy refreshments and a sneak preview during the October Preview Party for the annual Chrysanthemum Show, held in the Floral Display House.

Drive To Restore Historic Greenhouse

The Swedish Council of St. Louis has announced plans to help the Garden raise funds for restoration of the Linnaean House. Reynold W. Malmer has accepted the appointment as fund drive chairman from Dr. Philip Graham, president of the Swedish Council. The appointment was made at a dinner last October honoring Carl Linnaeus.

The Linnaean House is the oldest greenhouse west of the Mississippi River, and the only one of Henry Shaw's original greenhouses remaining at the Garden. Shaw named the building in honor of Linnaeus (1707-1778), the father of modern botany. Having been severely damaged by numerous storms over the last 60 years and never completely restored, the building is in serious need of repair.

In accepting the appointment as chairman of the drive, Malmer commented, "This is the finest monument to any Swede in the Midwest and it is fitting that we begin the drive to restore the Linnaean House 200 years after the death of Linnaeus."

The total cost of the project is expected to be $150,000. A $50,000 matching grant from the Missouri Department of Natural Resources was awarded last summer. Present plans call for completion of the restoration in 1979. The Linnaean House is located at the north end of the Garden and will be the first building encountered by visitors after leaving the planned Education/Visitor Orientation Center. This fact increases the importance of the restoration since the house will become even more of a focal point than it is presently.

Trees Of Many Lands

Garden visitors are in for a distinctive December treat. The Garden Museum will be decorated with an exhibit of Christmas trees. The theme is international, with displays representing the trees of Ireland, Russia, England, Austria, Denmark, Mexico, France, Holland, Africa, Scandinavia and America. The decorating will be done by the Girl Scouts of Greater St. Louis.

The display will be open daily from December 3 through December 29, during regular Garden hours.

Tower Grove House At Christmas

Henry Shaw's country home, Tower Grove House, will be closed for holiday decoration on Monday, December 11. It will open December 12 with hours from 10 a.m. to 4 p.m. The tearoom will be open for lunch, by reservation only, Tuesdays and Thursdays through December 21.

Volunteer tour guides are always in demand for Tower Grove House. The hours are 10 a.m. to 1 p.m. or 1 p.m. to 4 p.m. daily. This is a splendid opportunity for antique lovers to spend time in lovely Victorian surroundings. For more information, please call Jane Coultas, 773-9000.

The MISSOURI BOTANICAL GARDEN BULLETIN is published 12 issues per year monthly by the Missouri Botanical Garden 2345 Tower Grove Avenue, St Louis, Mo. 63110 Second class postage paid at St Louis, Mo $5.00 per year. $6.00 foreign

HENRY·SHAW·MEDAL
MISSOURI·BOTANICAL GARDEN

October: Milestone Month For The Garden

October was a month of exceptional historic significance at the Garden — marking both the 25th year of the Systematics Symposium and the first time in 45 years that the Henry Shaw Medal for Conservation was awarded.

The Henry Shaw Medal, the Garden's highest honor, was presented during a special October dinner to Roberto Incer Barquero, president, Banco Central de Nicaragua.

Dr. Raven's Remarks

In making the historic presentation, Dr. Peter H. Raven, Garden director, remarked:

"Central America is a tropical region about four-fifths the size of Texas, but with about twice as many people—some 20 million. Nicaragua, a beautiful and mountainous country where the pines of the northern hemisphere reach their southern limit, has about the same number of people as metropolitan St. Louis, some 2.4 million, in an area nearly the size of Missouri. It is the largest and least densely settled country in the Central American region, but the majority of the population is settled along the Pacific side of the Republic. Half of the people live in cities, a higher proportion than in any of the neighboring countries...

"Because of its relatively low population density, Nicaragua is in a better situation than any other country of Central America to understand its natural resources before they are gone and to manage them wisely for the benefit of future generations. One element in such management is the establishment of national parks and reserves for the enjoyment and education of all people, and to serve as ecological baselines for the prudent managment of other areas.

"In this field, Nicaragua has made a critical step with the establishment of the spectacular Volcan Masaya National Park, on the flanks of an active volcano near Managua. Attractive to residents and tourists alike, this park is an important addition to the growing network in the American tropics, and a fitting complement to those established recently in neighboring republics. It is for us a symbol of the wise management of natural resources that we confidently expect from the government of Nicaragua as additional areas, and especially the rich and extensive forests of the east coast, are developed.

"We are here tonight to honor the man most responsible for the creation of Nicaragua's first national park, Dr. Roberto Incer Barquero. As president of the Central Bank, he took the steps that made possible this significant gift to future generations. An economist and graduate of Yale and the London School of Economics, he has served for ten years in his present position and has achieved a position of prominence in international banking circles.

"The Henry Shaw Medal, named for the distinguished founder and benefactor of the Missouri Botanical Garden, has been given infrequently. In establishing the Garden, Henry Shaw made possible the development of one of the few institutions in the world capable of dealing effectively with the poorly known plants of the American tropics. At a time when the future prosperity and even survival of many nations depends on such knowledge, it is singularly fitting that we honor a man who has so clearly demonstrated his understanding of the problem and his willingness to do something about it. Doctor Incer, it is with the greatest pleasure that I award you the Henry Shaw Medal of the Missouri Botanical Garden, for your outstanding efforts in the field of conservation."

Dr. Incer, In Acceptance

Dr. Incer, in accepting the award, said: "I want to express my gratitude for the great honor that the Missouri Botanical Garden has bestowed on me by awarding the Henry Shaw Medal. I regard this medal as a great distinction and I receive it with great pride. I accept it and take it as a recognition of the fruitful work of the Central Bank of Nicaragua in the fields of research of the country's natural resources.

"I am so pleased to receive the Henry Shaw Medal from the Missouri Botanical Garden. Henry Shaw belonged to the group of distinguished Americans I admire the most. He is one who combined a successful business career with a deep hearted devotion for public service. His original vision has developed in the last 120 years into one of the finest scientific institutions in the United States — the Missouri Botanical Garden as it is today. By receiving the Henry Shaw Medal I feel that in some way I have met the challenge that the Nicaraguan people and government placed on me 10 years ago, when I was appointed president of the Central Bank of Nicaragua. It was my eager purpose at that time to combine in the Central Bank of Nicaragua the functions of a government agency with the vision of a far-sighted private foundation. Thus in the last ten

(Continued on Page 4)

Milestone Month *(Continued from Page 3)*

years the bank has been able to discharge its responsibilities as the monetary authority of Nicaragua, while supporting and sponsoring in this way a private foundation, training, research, and conservation of natural heritage.

"In the last ten years, our training programs have sent some two hundred young Nicaraguans to pursue graduate studies. They have come back from the best American and European universities with degrees in fields as economics, sociology, management sciences, biology and natural resources. The Bank's work in scientific research has been broad and extensive. It has embraced such fields as archaeology, geology, ecology, botany, zoology and forestry. Accordingly, just to mention a few cases, the Bank has sponsored such undertakings as archaeological expeditions on the Caribbean shores to investigate how the Nicaraguans lived 7,000 years ago, as well as studies on the seismic risks and geological faults in Managua, that will determine how the Nicaraguans must live in the years ahead.

Cooperative Programs

"In cooperation with American universities, U.S. foundations, professors and students, the Bank has promoted, among many other things, the investigation of two of the tropical endangered species — the fresh water shark in the Lake of Nicaragua, and the green turtle in the Caribbean Coast. We feel proud to say that Bernard Nietschmann's work on the turtle has been conducive for both the Nicaraguan and American governments in establishing decisive regulations on the capture and trade of this threatened marine species, thus not going too far apart from the pace set by Archie Carr on the conservation of these turtles in their nesting and breeding ground in Baun Colorado and in Costa Rica.

"The Bank feels proud to cooperate with the Missouri Botanical Garden and the Universidad Centroamericana of Managua to organize the Nicaraguan herbarium that will represent the first comprehensive effort made in this field in the country . . .

"I hope that with our conservation efforts our children may find the volcano surroundings not too much different from what John L. Stephens, who discovered the ancient Mayan ruins, described 140 years ago in his classic book, *Travels in Central America*. I am confident that this park will bear witness to the future generations that I, as president of the Central Bank of Nicaragua, cared for ecology as well as economy.

"Our open minds and hearts will be waiting for you in Nicaragua. Let me express again to the Missouri Botanical Garden, and especially to Dr. Raven, my gratitude for the great distinction I have received tonight. I will hold this award as one of the most cherished distinctions I have ever received in my life.

"Thank you."

The 25th Systematics Symposium

The 1978 Systematics Symposium began the same evening, October 20, with scientists in attendance from around the world. J. Heslop-Harrison, University College of Wales, who gave the principal address, is past director of Kew. In attendance as well was Dr. Huang from Taiwan who had been at the Garden 30 years ago. He came to this country to attend the Symposium and see some of his old friends. On a walk around the Garden he said, "Many things have changed in 30 years, but I feel as if I've come home."

The Symposium has been funded by the National Science Foundation for all of its 25-year history. It is so well attended that registration must be limited to the capacity of the auditorium.

The Symposium this year dealt with the characteristics of pollen of living plants. The study of pollen has become an important subject for botanical study in recent years and as such has yielded valuable insights into the problems of plant systematics (the classification of plants). The Symposium dealt with problems of interpreting pollen characteristics and the implications of these findings for other fields in botany. Dr. Heslop-Harrison's evening lecture entitled "Pollen Walls as Adaptive Systems" dealt with why pollen is structured in the way it is.

Four basic questions were addressed by the speakers: (1) What are the adaptive signs of various pollens and why such diversity in physical characteristics? (2) How have those changes come about? (3) How do insects change in relation to the pollen they gather? (4) What are the mechanics behind the germination of pollen on plants and other surfaces? The above questions have relevance in hybrids — the interbreeding of crop plants for the development of greater food potential.

The Garden's Future . . . *(Continued from Page 1)*

tween the new and the old. The stress is on people and moving people in a meaningful way from the building into the garden with ease, with pleasure. Outdoor dining experiences will be provided. All routes, all areas will be totally accessible to the handicapped.

The entire development of the north end of the Garden is made possible through the $6 million campaign which the Garden is striving to bring to a close by the end of this year. The goal is certainly within sight; however, much work still remains to be accomplished. There are many areas in which specific gifts can still be given. The Garden is for people and it is the people of the St. Louis area who are making these exciting changes possible. The Garden experience is for everyone, is enriching, is responding to the needs of the St. Louis area. The "Crystal Palace" will provide the facility for the expansion of the educational programs for St. Louis area children, teachers and continuing adult education.

Garden Tour : From Lily Pool To Mediterranean House

The writer (born in New Jersey) got his first glimpse of the Garden in a college text which featured a photo of *Victoria regia,* the giant water-lily displayed in the central pool in season *Victoria* commemorates Queen Victoria; *regia* means pertaining to the queen. The plant luxuriates in the backwater of the Amazon river. Each saucer-shaped leaf has a several-inch-high rim, notched in places, to let rainwater spill out of the leaf. Preschool children can stand in the middle of the floating leaf. If we turn over the pad we must be careful of the formidable spines. The prominent ribs, radially disposed, remind us of the spokes which give support to a bicycle wheel.

Forming a row on each side of the pools are the tall tapering Bald Cypress, close relatives of the pines. Unlike the pine, the Bald Cypress loses its needles annually. It does remarkably well out of water at the Garden, considering that its native home is swampy places like the bayous of Louisiana.

As we head for the Mediterranean House, we may see a few fruits of the gingko tree on the walk; these have escaped the gardener's rake. Their rancid oils are an unwelcome addition to the soles of our shoes. As we ascend the path and glance upwards to our right, the thick pods of the Kentucky Coffee tree stand upright on the crown of the tree like little brown flags.

Entering the glass doors of the Mediterranean House is stepping into a microcosm, revealing more than 200 living species from five areas of the world that possess a common type of climate: the Mediterranean region itself, parts of Chile, South Africa, California, and Australia.

The Mediterranean and Middle East areas are best represented, particularly by plants mentioned in the Old and New Testaments. To the right of the stone steps is the sleek-leaved olive tree, stalwart symbol of the Mediterranean and its azure skies. Immediately beneath it is a pomegranate shrub with orange bell-shaped flowers and rotund fruits, the favorite ornamental design for the hems of the ancient Israelite priests. A few feet ahead is the low sprawling caper plant, the traditional spice. The Old Testament reference: "When the caper berry ceaseth" (Ecclesiastes 12:5) is to the decrease in appetite marking the advent of old age. The leaves of the bay laurel tree nearby have a long tradition as a spice and were fashioned into crowns for the victors in the original Olympic games.

At the far end of the House is a small tree, the cork oak. In its native home, Spain and Portugal, it is favored by azure skies. The trunk develops thick shields of cork. Strips are removed as if taking the skin from a gigantic apple, without injuring the internal living tissues. Machines resembling those in bottling works punch out corks of various sizes more rapidly than a housewife can cut out cookies from dough.

Near the cork oak is an overhead trellis furnishing support for the coiled tendrils of the rambling grape vine; when in flower a delicate perfume signals the bouquet of the future wine; its fruits conjure up visions of the vineyards of the world, whether they be in St. James, Missouri, or in the hills of Mantua near Rome, immortalized by the poet Vergil.

A few feet from the cork oak is a legume, the carob tree. Today in the Mediterranean area, the fruits of *Ceratonia siliqua* furnish food as they did more than two millenia ago. There comes to mind the parable of the Prodigal Son who had abandoned the comforts of his father's home. With honor lost and money dissipated, he faced starvation. It was the fruit of the carob tree, then regarded as food for hogs, which was his hope of survival.

Near the door opposite the trellis plant is the *Acanthus* plant, which in season bears an erect spike of purple flowers. Its leaves, elongate and sinuately lobed on the margin, are its chief claim to fame. Throughout history, its leaves have made more of a permanent impression on the eye of man than the foliage of the maple or oak. The *Acanthus* leaf has been a favorite since antiquity, whether carved on the top of ancient Greek or Roman capitals or gracing the later churches of the Christian era; they decorated timeless sarcophagi and the illuminated manuscripts of the Dark Ages, a hallmark of all ages! A second species of *Acanthus,* with formidable spines on the foliage, is growing just above the wall adjacent to the Climatron's waterfall.

Somewhat hidden in the opposite corner, next to the same door, is a harmless looking herb called *Atropa belladonna,* a member of the nightshade, tomato or potato family. The Solanaceae, while obviously an outstanding supplier of food for man, contains an array of "bad actors," e.g., the jimpson weed or the Jerusalem cherry so often implicated in poisonings. The shiny black berries are power houses of poisons, including the alkaloids atropine and scopalamine. The magic of medicine is that these poisons, deadly in the raw, can be turned to advantage by the physician and pharmacist who prescribe them in efficacious dosage. A specialist examining your eyes will probably place a drop of atropine therein. The drug stimulates the dilation of the pupil, the eye's window, and the internal world of the eye becomes visible. Ladies in the past (and perhaps in the present) have been known to take advantage of the effects of very weak dosage of atropine. A harmless drop and their eyes become like limpid pools; thus the specific name of the plant, belladonna, the Spanish for "beautiful lady."

— John Dwyer

Ideas For Gift-Giving

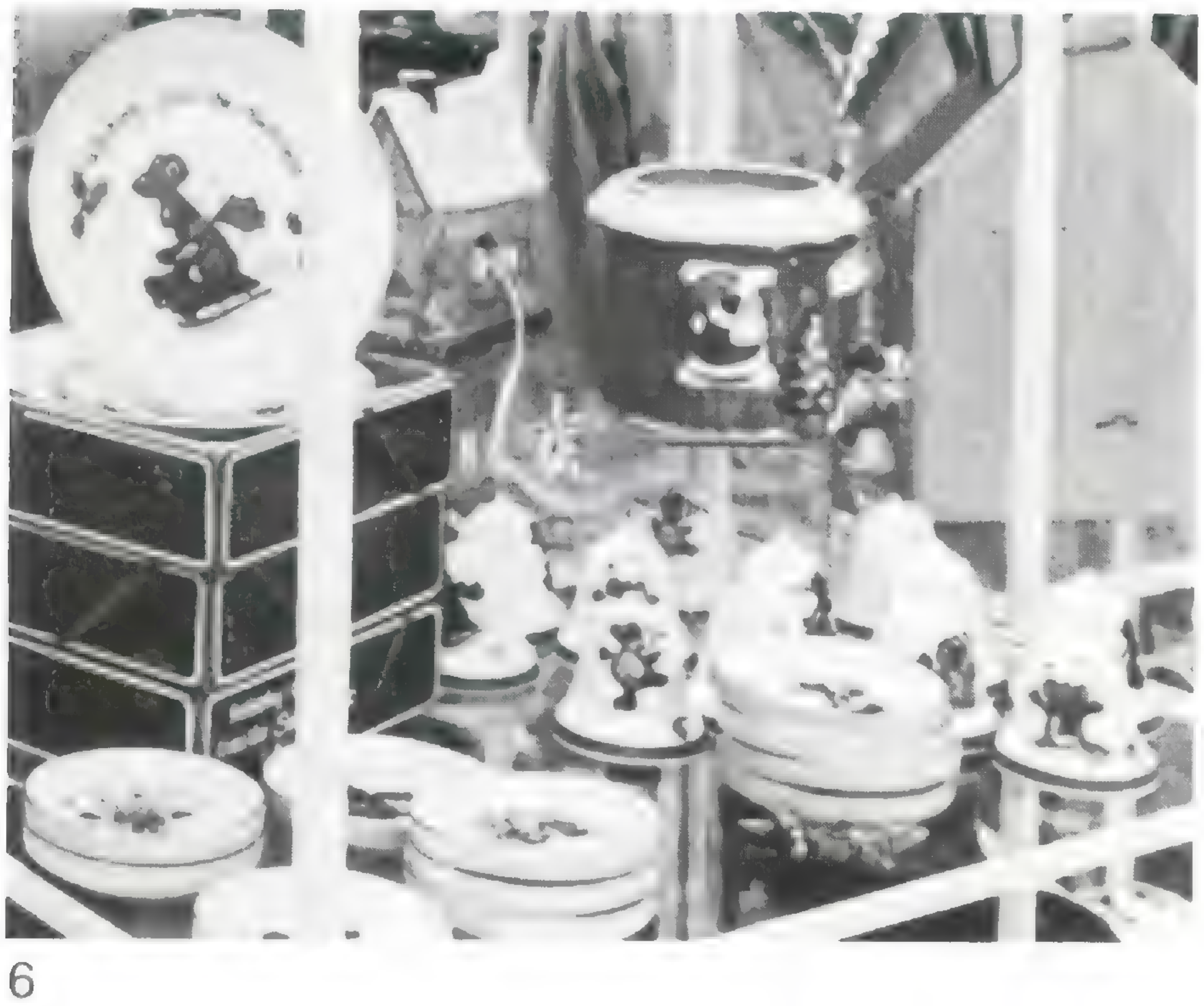
Special Gift Ideas

The Garden Gate Shop is decorated for the holidays with many new gift items. The photographs on these pages represent only a few of the many new items available. Don't forget that gifts can now be mailed directly from the Garden Gate Shop.

Also available are *Missouri Wildflowers* by Erna Eisendrath and the lovely *Delphinium trelease* print for your flower oriented friends — a special reminder of the Garden at holiday time.

Take time to stop by the Garden Gate Shop and the Plant Shop for your special holiday shopping. Hours are 10 a.m. to 4:30 p.m. daily.

Garden Gate Shop



Plant Shop Discount Specials

Members should have received a special mailing from the Plant Shop entitling them to a 20% discount on all purchases. Special holiday plant offerings include Christmas cacti, gardenias, amaryllis, paper white narcissus, camellias, azaleas, cyclamen and the usual fine assortment of other plants.

Despite the November 10 fire at the Floral Display House, the Plant Shop remains in operation and is open from 10 a.m. to 4:30 p.m. daily.

Garden Receives NEH Award

The Garden has received an award of $2,500 from the National Endowment for the Humanities. What is especially significant is that this award comes through the NEH Youth Projects, an experimental effort to increase the opportunities for young people to engage in a variety of humanity learning experiences.

The Garden was among 700 award applicants, of which only 120 were funded.

The Garden application focused on creating greater intercultural awareness through an appreciation and understanding of the Japanese culture. Specifically, the NEH-funded project will help children recognize the threads of communality that exist between and across cultures. One exciting aspect of this project is that the Garden program may serve as a pilot study for programs of activity for other Japanese gardens across the country.

The potential for additional programs and funding in this area provides an exciting challenge for the future.

Missouri's Endangered Species

The Garden has been collaborating with the Missouri Department of Conservation since last January on the compilation of a comprehensive list of sites where rare or endangered plants are growing. There are nearly 400 plant species considered rare or endangered within the boundaries of Missouri, including nine which may be in danger of complete extinction. The study was directed by Richard H. Daley of the Garden staff. The list, based on herbarium specimens, will be used as the basis for a comprehensive inventory of current locations. Several hundred sites were pin-pointed in the study, and the data have been stored in a computer.

The Garden and the Missouri Department of Conservation, which funded the herbarium study, held a one-day workshop in Jefferson City on October 7 to discuss the study and the best use of the information. About 40 people, including both amateur and professional botanists, attended the invitation-only conference. John E. Wylie, head of the Conservation Department's new Natural History Section and known to Members from his lecture at the Garden last month, moderated the meeting. Dr. James Wilson, endangered species coordinator for the Conservation Department, explained state and federal programs aimed at protecting rare plants. Keith Evans and Beverly Roedner discussed the U.S. Forest Service's research on rare plants on glades in southwestern Missouri.

At the conclusion of the meeting, the consensus was that better information is needed about all plants, not only the rare ones, if wise decisions are to be made about our resources. The formation of a native plant society in Missouri might be the best mechanism for communication among amateur and professional botanists.

Orchids At Home At Arboretum

The orchid, exotic and beautiful, is usually thought of as a resident only of the tropics or, in our latitude, a greenhouse guest.

It comes as a surprise to many Missourians that there are 31 species of orchids found in the state, as listed in Steyermark's *Flora of Missouri.*

Until this fall, only five species had been found at the Shaw Arboretum. But, several weeks ago, 18 wildflower enthusiasts were delighted to see a sixth species which had not been discovered there before. This rare orchid, *Spiranthes ovalis*, was found by Karen Haller and identified by Betty Nellums, Nell Menke, and Art Christ, leaders of the popular Tuesday Wildflower Walks at the Arboretum, with the expert help of Bill Summers.

Spiranthes ovalis is reported in Steyermark's *Flora of Missouri* as found in only three counties in the state. *Spiranthes ovalis* is similar in appearance to *Spiranthes cernue*, which has the common name "nodding ladies' tresses" or "common ladies tresses" and is one of the most abundant orchids found in Missouri. Both species have an inflorescence consisting of many small white flowers ascending to the tip of a spike in two or more spirals. This spiral arrangement of the flowers is the origin of both the common and the genus name.

Another orchid was found this fall by Nell Menke, and tentatively identified as *Hexalectris spicata*, crested coral root. This species also has not been previously reported at the Arboretum. Only the flower stalk with dried flowers and seed pods were found, since this species blooms in July and August. Identification of this species is more difficult because it is saprophytic and has no leaves. Positive identification must wait until the plant blooms next summer.

Perhaps other species of orchids will be found as more people avail themselves of the opportunity to explore the Arboretum.

—William Davit
Shaw Arboretum

Answerman Service

A reminder to Members that the regular answerman service has been discontinued for the winter months. The volunteers who man the telephones will be in training during this time. Anyone interested in becoming an answerman should contact the education department.

However, during this time, Paul Kohl will be available to answer horticultural questions. Mr. Kohl or a volunteer will be on call from 9 a.m. to noon daily, Monday through Friday.

A Gift That Lasts All Year

Finding a unique and especially thoughtful way to remember family and friends at holiday time is a difficult task. Too often, we end up settling on "the best of the pick," rather than "just the right one."

We'd like to make a holiday gift suggestion that is personal and distinctive . . . Membership in the Missouri Botanical Garden.

Nowhere can you find another gift that gives beauty and enrichment all year long. You can give unlimited admission to the Garden, the monthly *Bulletin,* discounts on plants and Garden Gate Shop items, lecture series and courses, trips — all the benefits of Membership that you already enjoy.

One of the nicest holiday gifts you could give, gives back to you, for you are supporting an institution you believe to be important to the community, the world.

Avoid shopping in crowded stores, wrapping gifts, waiting till the last minute. Simply fill out the form below and mail to our Membership Office. We will include a gift certificate for a special plant for each person on your list. You can solve your gift problems and increase your support of the Garden (tax deductible, of course) all at the same time by giving a very special gift to the special people on your list.

- -

NAME ______________________________

ADDRESS ______________________________

CITY ______________________________

STATE ______________ ZIP CODE ________

YOUR NAME ______________________________

ADDRESS ______________________________

CITY ______________________________

STATE ______________ ZIP CODE ________

I am ordering _____ gift Membership(s)

☐ Enclosed is my check for $ ______________

(Payable to Missouri Botanical Garden)

☐ Please charge this to my Master Charge

____

Overseas Report: British Gardens

Whitney and Jane Harris, along with their son, Eugene, have returned from a tour of gardens in England, Scotland and Wales. A report:

The Harrises, after much research and study, selected gardens in England that would best exemplify the historic evolution of gardens in that country. Among those visited were: Royal Botanic Gardens, Kew; Blenheim Palace, Woodstock, Oxfordshire; Bodnant, Taly-y-cafn, Gwynedd (Wales), famous for its rhododendrons, camellias and magnolias; Hever Castle, Hever, Kent, formal Italian gardens with sculpture and statuary; Nymans, Handcross, West Sussex, collector's garden of rare trees, shrubs and plants; Stourhead, Stourton, Wiltshire, elegant eighteenth century British landscapes; and Wisley Garden, Surrey, garden of Royal Horticultural Society.

The gardens of Edinburgh followed in a fantastic progression. The first was the Royal Botanic Garden, Edinburgh, Lothian, in a parklike setting with a uniquely designed plant display house, herbarium and library. A sampling of other gardens seen: Edzell Castle, Edzell, Tayside, the oldest complete renaissance garden in the British Isles; Inverewe, Poolewe, Highland, a collection of exotic plants, possibly the finest in the British Isles; Wallington, Cambo, Northumberland, containing an enchanting secret garden in the woods.

This list barely scratches the surface of the extensive list of gardens studied and viewed by the Harris family. The trip was carefully planned in advance and proved very educational and rewarding.

Calendar of Events

Dec. 2- Jan. 1, 1979	"The Ubiquitous Euphorbias" 9 a.m.-4:30 p.m. (except Christmas day) Desert House
Dec. 16- Jan. 6	Poinsettia Exhibit 10 a.m.-4:30 p.m. daily (except Christmas day) Climatron
Dec. 3-29	International Christmas Trees Exhibit Regular Garden hours Garden Museum
Jan. 16, 23, 30	Kitchen Botany: The Art of Using Plants 7:30-9:30 p.m. John S. Lehmann Bldg. (To register, call 772-7600, Education Dept.)

Gardening in St. Louis

The month of December brings outside gardening tasks to a close for the season, although a final raking and cleaning of the garden may be necessary. It is the time to continue making notes of garden successes, failures and ideas for next season. You are the expert about your own microclimate and your successes should give you clues to new choices for next spring.

Check your local library or come to the Garden library to use the special Members' section of new books and magazines. Winter evenings provide leisure time to do some planning for next year.

December also is the month of gift giving. Remember your gardening friends with garden books, gift certificates from nurseries or garden centers and holiday plants.

Indoor Plants and Greenhouses

Watch watering of house plants since days are shorter and growth is slower. Do not feed at this time unless plants are actively flowering.

Home greenhouses should be checked closely for temperature fluctuations. Warm sunny days can send the temperature soaring. Ventilation and fresh air will be beneficial for the plants. Reducing night temperatures will save on heating bills. Keep checking for insects. If red spider is a problem, control with Pentac.

Garden Storage Areas

Check to be certain that all sprays have been stored where the temperature is 50°-60°. Avoid freezing. Fertilizer which is in open bags will be broken down by moisture so should be placed in airtight containers. Clean garden tools with soap and water, sharpen if necessary and rub with oil. Clean and service your lawnmower and sharpen blades, if necessary. Powdered insecticides can be stored in plastic bags and sealed against moisture. Clean all pots, adding a mild disinfectant to the wash water, so that they will be ready for use in the spring. Seed should be stored in an area where temperatures are around 45°. Store garden hoses after inspecting and draining. Freezing and thawing will cause hoses to split.

Be certain to give holiday gift plants sufficient light.

Take a few minutes to send away for seed and nursery catalogs.

Christmas Tree Care

Select your tree early and take time in the selection. Check to be certain that the trunk is straight and that the tree is evenly branched!

After purchasing your tree, cut off an inch or so from the butt end and place the tree in a bucket of water in a cool place. The tree will remain much fresher if placed in a stand that will hold water. Keep stand filled with water inside. Place tree away from heat ducts and the fireplace. Check lights to be certain wires are not frayed.

University of Missouri Extension recommends that additives to the water have no proven value.

Keep your feeders filled for feathered friends and don't forget to supply water.

Happy Holidays!

— Barbara B. Pesch

Trip Reminder

Hawaii — February 7-20

Desert Tour — March 24-31

Scandinavian/Russian Cruise — June 12-26

For further information, please call the Members' office, 772-7600, extension 25.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION (ACT OF AUGUST 12, 1970 SECTION 3685, TITLE 39, UNITED STATES CODE.)

1. Title of Publication: MISSOURI BOTANICAL GARDEN BULLETIN
2. Date of Filing: November 1, 1978
3. Frequency of issues: 12 issues per year — monthly
4. Location of known office of Publication: 2345 Tower Grove Avenue, St. Louis, Missouri 63110
5. Location of the Headquarters or General Business Offices of the Publishers: 2345 Tower Grove Avenue, St. Louis, Missouri 63110
6. Names and addresses of publisher and editor are: Publisher, Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Missouri 63110, Editor, Barbara B. Pesch
7. Owner: Missouri Botanical Garden, 2345 Tower Grove Avenue, St. Louis, Missouri 63110
8. Known bondholders, mortgages, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities: None
9. The purpose, function and nonprofit status of this organization and the exempt status for Federal income tax purposes has not changed during preceding 12 months. Authorized to mail at special rates (Section 132.122, PSM)
10. Extent and nature of circulation:

		Average no. copies each issue during preceding 12 months	Actual no. copies of single issue published nearest to filing date
A.	Total no copies printed (Net Press Run)	10,500	11,500
B.	Paid Circulation		
	1. Sales through dealers and carriers, street vendors and counter sales	none	none
	2. Mail subscriptions	9,500	10,209
C.	Total paid circulation	9,500	10,209
D.	Free distribution by mail, carrier or other means samples, complimentary and other free copies	500	717
E.	Total distribution	10,000	10,926
F.	Copies not distributed		
	1. Office use, left-over, unaccounted, spoiled after printing	500	574
	2. Returns from news agents	none	none
G.	Total (Sum of E, F1 and 2 — should equal net press run shown in A)	10,500	11,500

I certify that the statement made by me above is correct and complete.

(Signed) Barbara B. Pesch, Editor
Publications Department

Member of
The Arts and Education
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Mr./Mrs. Larsen E. Scott
Mr./Mrs. Hugh K. Steavenson
Mr./Mrs. Earl W. Volz
Mr./Mrs. Nicholas M. Weiss

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Mr. Greg Campbell
Mr./Mrs. Norman J. Donnelly
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